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Bulletin of the Taylor Society

A Society to Promote the Science of Management

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Vice-President (1917) Morris L. Cooke, 5218 New Interior Bldg., Washington, D. C.

Vice-President (1918) George D. Babcock, H. H. Franklin Mfg. Co., Syracuse, N. Y.

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COMMENT AND NEWS

ANNUAL MEETING

The annual meeting of the Society will this year be held December 7 and 8, in Washington, D. C., instead of New York City. It is felt that the importance of the subjects to be discussed, coupled with the fact that so many of our members are performing war service there, makes the Capitol the logical place for the meeting of what will probably be one of the most representative and significant gatherings in the history of the Society.

The meeting will be devoted primarily to a description of the various forms of government service which our members and those associated with them have undertaken; and a symposium on the general problem of centralization versus decentralization in the organization of government work. It is hoped to develop such a discussion of this latter problem as will result in practical assistance to those responsible for the further development of the various government departments.

Announcement of the program will be made in the near future. This preliminary notice is given in order that every member of the Society who can possibly do so, no matter how busy or how actively engaged in war service, may arrange to be present and share in the service to the country which it is hoped this meeting will perform.

NEW MEMBERS

The following have been elected to membership in the Society:

Members

*Leroy B. Fraser, Industrial Engineer, Winchester Repeating Arms Co., New Haven, Conn.

*William D. Hemmerly, 310 Yale Ave., New Haven, Conn.

*Frank E. Northime, 5028 Larchwood Ave., Philadelphia, Pa.

Associate Members

Wilfred Bancroft, Slatersville Finishing Co., Slatersville, R. I.

*H. A. Bartholomaei, Eastern Mfg. Co., So. Brewer, Me.

Clinton F. Chance, Chance and Hunt, Ltd., Oldbury, Nr. Birmingham, England.

Henry S. Dennison, Treasurer, Dennison Mfg. Co., Framingham, Mass.

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Cecil D. Gregg, President, Evens & Howard Fire Brick Co., St. Louis, Mo.
Charles Hermann, Superintendent, Hermann, Aukam & Co., So. River, N. J.
Walter H. Holland, The Dow Chemical Co., Midland, Mich.
Ferdinand M. Holmes, Trust Officer, Old Colony Trust Co., Boston, Mass.
Ray M. Hudson, Employment Superintendent, H. H. Franklin Mfg. Co., Syracuse, N. Y.
Walter E. Latt, The Regina Co., Rahway, N. J.
Gus E. Schulz, Tabor Mfg. Co., Philadelphia, Pa.
Richard Stanforth, German-American Button Co., Rochester, N. Y.

Affiliate Members

Kurt W. Freund, Industrial Engineer, 1502 E. 18th St., Brooklyn, N. Y.
Harold B. Hayden, Manager of Works, Dennison Mfg. Co., Framingham, Mass.
Edward I. H. Howell, 5218 Germantown Ave., Philadelphia, Pa.
Raymond C. Mateer, Scott Paper Co., Chester, Pa.
Chester T. Morey, Assistant Superintendent, R. I. Tool Co., Providence, R. I.

Junior Members

Charles L. Barnum, Vermont Terrace, Crestwood, Westchester Co., N. Y.
Fred B. Mitchell, Hermann, Aukam Co., So. River, N. J.

ADDRESS CHANGES

The secretary's office has received notice of the following changes of address. Any others who have changed their address are requested to notify the office accordingly.

A. Merriam Cook, 335 Arcade Bldg., Norfolk, Va.
Morris L. Cooke, 5218 New Interior Bldg., Washington, D. C.
M. S. Dowd, The Clay Products Co., Lemcke Annex, Indianapolis, Ind.
Francis Goodell, 87 Boston St., Somerville, Mass.
Arthur B. Green, 89 Westminster St., Springfield, Mass.
Keppele Hall, Supply Division, Ordnance Dept., 1330 F St., Washington, D. C.
H. K. Hathaway, 1330 F St., N.W., Washington, D. C.
Robert T. Kent, 82 Broome St., New York City.
Edwin Krause, 141 Wilbraham Road, Springfield, Mass.
Carroll C. Miles, Lock Box 1550, Pittsfield, Mass.
T. W. Mitchell, Acme Wire Co., New Haven, Conn.
C. W. Mixter, 77 Grove St., New Haven, Conn.
F. A. Parkhurst, 6205 Carnegie Ave., Cleveland, Ohio.
H. S. Person, 5216 New Interior Bldg., Washington, D. C.
John H. Scoville, Box 537, Donora, Pa.

The secretary wishes again to call the attention of members to the photogravures of Frederick Winslow Taylor, in order that those who desire may obtain copies before the supply, which is limited, is exhausted. Those who knew Mr. Taylor best consider this a most satisfactory portrait. It measures 6½" x 8", mounted on a heavy card 12" x 15". One or more copies will be sent postpaid from the secretary's office upon receipt of the price of $1.00 each.

A supplement will be issued shortly giving the war service record to date of the various members. It is planned to send out circulars for additional information and it is hoped that the members will coöperate in sending in returns so that the record will fulfill its possibilities of usefulness and interest. Suggestions for the improvement of the record will be welcomed.

May 10th, 1917.

Mr. Henry W. Shelton, Secretary,
Taylor Society, Hanover, N. H.

My dear Mr. Shelton:

I have notice from you under date of May 8th that the Syracuse meeting scheduled for May 18 and 19th has been indefinitely postponed, qualifying this statement by saying that this has been made necessary by the emergencies of the war.

I have always thought that a guest who put his feet on top of the dining room table, while making himself thoroughly at home and showing himself familiar with homelike usage, was somewhat straining the rules of hospitality. In a recently issued pamphlet, Mr. Morris L. Cooke said that those interested in Scientific Management were down on their knees begging for criticism. I will assume that, as he would have been the principal speaker at the Syracuse meeting, this expresses the views of the Society. Such being the case, I have less hesitancy on kicking the family cat and on removing my coat as well as my hat when I come into your house.

Balfour said he came to this country to see if he could not keep America from making some of the egregious blunders that were made by England at the beginning of the war. The men were taken from the factories and sent to the trenches and then had to be taken from the trenches back to the factories. That was the spirit of blundering that went on everywhere. Here in America, now of all times, do we need Scientific Management. Everyone interested in it is trying to put the spirit and soul in the work with which he is connected. Where can we get this better than at these meetings of the Taylor Society? If a man cannot leave his business for two or three days any time, he will find that the business has him under control instead of his having the business under control.

In England it was found that they had to adopt the shibboleth "business as usual." We must adopt that idea here. We must hit the line hard and we must hit it with all our soul and with all our spirit.

Shall we give up this work with the spirit because there is trouble? Trouble is what makes men and never hurts anyone, but we must look at this big trouble of ours just as a man looks at little troubles, clear eyed, cool headed and with his feet on the ground.

If I were the head of the Taylor Society I would call that meeting if there were only a half dozen people in attendance. I would keep the fire burning on the altar of Industrial Independence and that is what Scientific Management means to me. The little crowd that would come to worship at the altar would be the kind of apostles that would spread the gospel around the world. In Scientific Management we pride ourselves on facts and it is a fact as I see it that the troublous times of today will soon hereafter be looked upon as a Golden Age. It is up to us to cheer up now as certainly the worst is yet to come.

I think I have said enough about the becomingness of my hostess' hat and will say that whatever you do I am with you.

(Signed) CECIL D. GREGG[1]

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[1] President, Evens and Howard Fire Brick Co., St. Louis, Mo.

THE UTILIZATION OF THE MAIMED FOR THE SCIENTIFIC ORGANIZATION OF WORK

BY

M. CH. DE FREMINVILLE

Translated by Eleanor B. Cooke.

There is not a single person in France who is indifferent to the fate of the maimed. We shall never be able to make up to them for their sacrifices, but the least we can do is to put them in a position to earn their own living. It is up to us to make it possible for them to take a place in our midst, worthy of them and of us.

Doubtless, such efforts as have been made in the line of re-education have already brought about excellent results, and are bound to be increasingly fruitful. Most ingenious contrivances have been devised to replace the members lost, and re-education schools have demonstrated what can be accomplished by their efforts. Most of the injured consider themselves in luck if they are able to take up their old trade again for what it may be worth, or any other trade that they can master, and they appreciate any help they receive towards this end. But, in spite of everything, the cripple who returns to work is all too often at a disadvantage too painful to contemplate, and especially so if he was a skillful worker before his injury. Instead of forcing themselves to take up manual work again under unfavorable conditions, some of them at least might better follow the path suggested here, and seek admission to the establishments which are applying new methods of organizing work, or who are planing to apply them.

The Scientific Organization of Work is a very large subject which is not yet understood as it should be. It would be necessary to go into the whole history of the subject suggested by my title to properly explain the rôle which the maimed can play in the development of the idea; and especially to make it clear what steps must be taken in order that they secure the greatest possible advantages from it. But I can say from my own experience that the maimed have already been used with great success in the scientific organization of work, and that there certainly is an interesting field to be developed in this direction. Although a mere statement of this fact is not all that is necessary to accomplish the placing of the maimed in positions of advantage, let us hope that it may at least be the entering wedge of a useful undertaking.

* * * *

The events in which we are taking part have brought severe criticisms on French industry. It has been reproached with the sins of being deficient in both organization and method. Everybody is willing to admit as much. It is very apparent that our adversaries have excelled us in this respect, and that we will have to apply ourselves assiduously if we are to regain the place which we ought to occupy. Let us come to the point then. Is organization a new idea? an idea unknown to us? Many of our leading spirits thought they understood very well the value of method and organization. They went so far as to believe that many people in France had made excellent use of them. What then is the special character of the innovation which justifies this campaign in favor of method and organization?

First of all, it is a campaign of education. Its object is to extend and to make universal the use of method and of organization in industry: to demonstrate that we must make their application much more general than we have done in the past. It is a campaign to prove that it is to the interest of every employer to introduce method and organization in all industrial operations, from the co-operation among the employers themselves, which is necessary to securing the most extensive programs of production, to the most minute study of the task of the workman.

In each of the links of this long chain, sacrificing individualism for the sake of the whole, we must create standardized methods which will lead up to standardized organizations. This is the distinguishing characteristic of the new school of Scientific Management.

* * * *

But does not this new school teach us that it is necessary to call in many assistants if we are to organize an industry thoroughly and to utilize properly the hand of the workman? Where are we to find these assistants and how are we to teach them? To begin with, the first requisite is to transfer some of the actual workers over to the task of analyzing and planning the work, which is an essential characteristic of the new methods. Numerous examples might be cited to show how the output of the shop is increased in more than proportionate measure by detailing a few competent men to analyze and plan the work in advance. In this way, the output frequently amounts to two or three times the output of an ordinary shop; sometimes more. I might mention a recent example in which a riveting job turned out five hundred rivets in a ten hour day under average conditions. There was nothing difficult about the mechanical process, and as the workman was paid by piece rate, it was to his interest to do his best. Careful study developed the fact that there was no synchronism between the various tasks of boring, heating and riveting, and that this lack of synchronism which retarded production never corrected itself. In a very few days, a minute study brought about the necessary changes, and the workmen soon increased their output from five hundred to three thousand rivets a day. This increase in production was due entirely to the proper utilization of both the tools and the labor of the workmen, without any suspicion of overwork.

Examples of this kind have been cited sufficiently often to leave us no room for doubt. Many employers would like to get the benefit of them. But how shall they change from the old way to the new? They cannot begin by robbing the shop of its best material and assigning them to an investigation of the work, without running the risk of lowering the production. There is reason enough for hesitation, even on the part of those who are the most thoroughly convinced. To help them to a decision, I would say to them quite frankly: You have at hand a way of making the experiment without disturbing a single man in your shop. Take a maimed soldier, a good workman who is no longer able to work with his hands. You will unquestionably find in him an excellent assistant for what you wish to undertake. You will render the greatest possible service to a brave man, as well as to yourself.

An intelligent workman may easily prove to be the man competent to be detailed to the analysis of the work. By this I mean a workman, who, having served a more or less difficult and thorough apprenticeship, is conscious of having earned an honorable place in the world of work, and is not without hope of continuing to rise, if circumstances are favorable. It is to such a man that you must appeal; to the man who, before he was injured, might have looked forward to being a gang boss or foreman. Heretofore the chances were very much against his realizing this ambition because the multiplication of the functions of an ordinary foreman required a great variety of qualifications and of general knowledge; of physical and moral qualifications; of administrative, technical, and professional knowledge. It was very difficult for the average workman to possess all these qualities, even in an elementary degree.

It was in speaking of this all round foreman that Taylor said, "When you do succeed in finding a man able to fulfill all these functions satisfactorily, you must not make a foreman of him, but a chief engineer, or a manager at least." We used to think that all our efforts should tend towards the development of this rare bird and even that he ought to emerge full fledged from school *ad hoc*. But, if we may believe Taylor and his school, we were on the wrong road, and it might even be said that this conception of the qualifications of a foreman was such as to reduce the number of candidates for the position and therefore constituted a serious obstacle to the development of industry. The new school has fewer requirements as to what concerns the equipment of its assistants. It demands, first of all, that after having received a good elementary instruction, they may have acquired genuine faith in the power of the analytical method of work; a faith that will enable them to attack new problems and new difficulties without fear.

This productive method must take full possession of the Industrial School; but it can also be introduced directly into the shop. It is the shops which will develop most of the assistants which Industrial Expansion demands.

The new methods have separated the duties of the foreman, and have distributed them among several heads, which have sometimes been called "functional foremen." One of them is especially responsible for the management of the personnel; another for a study of the work; another for the study of the use of tools, etc. . . The first of these functional foremen must primarily understand men: he must give an account of their intelligence: he must know whether they are occupied to the best of their ability and physical strength; which of them are ambitious to better themselves; which of them believe themselves incapable of further advancement and are without ambition to do more than honestly earn their daily wage; he must know how they can be helped and encouraged; and which of them are entirely out of their element, and should be induced to change their line of work. Without unduly meddling in the private life of the men, he must have sufficient tact not to press a man who is laboring under some grave anxiety. He must study the new comers; put them in the right path; direct them and follow them up. In a word, he must hold the personnel in the hollow of his hand. To accomplish all this in a shop of one hundred and fifty or two hundred men, a man must have nothing else to do. Perhaps we will find that the maimed are able to fulfill this function and it is interesting to call attention to the possibility, although it is not the chief object of this paper whose main purpose is the utilization of professional knowledge.

Professional knowledge is particularly essential to the analysis of the task of the workman. It is equally necessary for the preparation of detailed instructions; for the methodical forwarding of the material to be manufactured; for the study of improvements to be brought about in the tools themselves as well as in their maintenance; for the preparation of the tools necessary in all the tasks to be performed. Each of these operations must be entrusted to a special head, and it is here that the injured workman heretofore described has the greatest chance of finding employment.

The analysis of the work is, moreover, the key to the new methods. The breaking up of the work as completely as possible into its separate elements is the only way of establishing a definite basis for the regulation of the wage of the workman. When this method is used, a fair bargain can be entered into, by which a workman earns good wages, and is free from the temptation to limit his output. Above all, the analysis of work is the only method of study and research by which it is possible to attain the maximum utilization of the two means of production: viz, the hand of the workman, and the use of tools. Such a separation of work into its component parts can be made only by one who is familiar with the work and able to understand all its elements. It must be made by a man from the shop. It is not absolutely necessary that he study only those tasks which he knows best how to actually perform, but he must be familiar with shop life.

It is quite true that at one time the only thing supposed to be necessary in making a time study was to put a stop watch in the hands of the first comer, but this idea has been rapidly outgrown. Time study made by an incompetent man is worthless. An intelligent workman, who is able to understand the difficulties of the work, and the point of view of the operator, must therefore be detailed to it. To a shop worker there is nothing more absorbing than the study of the elements of a given task. I have always found that the most experienced workers are amazed at the revelations that reward such investigation. You would think there would be many applicants for this position, but there are none.

A good workman always experiences a certain degree of apprehension when he considers giving up a trade in which he is proficient and which has been the main object of his life. He is not quite sure where the path which has been recommended to him may lead him. He is often afraid of becoming what they call "a paper employee." It requires some special occasion to induce him to enter upon the new road. I have already found a few workmen for whom this occasion was their being injured. Taylor would have said, "That was their opportunity."

Again, a man must also be young to be able to change his habits, and herein is one more augury of success for the maimed. I have said that there is an unlimited field for the utilization of the injured in the scientific organization of work. I can cite a very important building establishment which, after resolutely launching itself in the new path, has seen its efforts crowned with success—due in large measure to the intelligent and faithful co-operation which it has met among the maimed; a co-operation which is both material and moral. This is an example which might easily be made general.

In the foregoing statement, the examples have been taken principally from the shop, but it must not be assumed that the so-called workman is the only one concerned. Without going beyond the plant which I have just mentioned, I came across an injured man who never having done any manual work took as a model the analysis which he had seen made for shop work, and proceeded in the same way to analyze several of the tasks in the work of the accounting office, to the great benefit of the service. Similar good could be accomplished in many commercial and administrative concerns. They would find it of great advantage to study in this way what steps are necessary to take in order to make the work of their employees more productive and less laborious. In conclusion, I would like to address a few words directly to one of the most interesting among the injured of our country: the farmer. It is true that Taylor began his studies in scientific management by devoting his attention to the workman of the mechanic class, but he reiterated for those who had ears to hear, that agriculture was the most fruitful field for the application of these methods. He advised their application, there, as everywhere else, with the object of increasing the output of the worker but above all, with the object of giving an account himself of everything that might be better utilized, better chosen, and better directed towards the desired end. He included in this list the patient researches relative to the selection and distribution of crops which so often give marvellous results, and which are neglected simply because more pressing demands leave no time for their consideration. How many intelligent farmers there are who could render the greatest possible service by applying themselves to the new task, if only they could be relieved of the cruel necessity of doing the actual work! Let but a few of them take the first steps and they will very soon have established themselves as a centre of information on the subject.

Moreover, it is agricultural life that furnishes the most remarkable example of what will-power and determination can do to triumph over physical limitation. "Was it not after losing his life, that Huber discovered the most secret marvels of the life of the bee?"

MAINTENANCE OF MACHINERY AND EQUIPMENT AS A PART OF THE TAYLOR SYSTEM OF MANAGEMENT[1]

By H. K. Hathaway.[2]

This paper was written as a report to one of my clients where we are endeavoring now to put it into effect, and I had hoped before presenting it as a paper before the Society to have the plan fully developed and worked out in practice, but to do that will require a longer time than I had counted upon. My chief object in presenting it tonight is to bring up for discussion the subject of maintenance and to try to make everyone realize the true importance of a properly developed maintenance system as a part of the Taylor system of management.

The writer recollects, while an apprentice at the Midvale Steel Company, having seen complete detailed instruction cards covering the operation of cleaning boilers, describing step by step each detail of the operation and the tools necessary for doing the work. These were a part of a system for the maintenance of all machinery and equipment devised and put into operation by Frederick W. Taylor while Chief Engineer at Midvale.

Since becoming associated with the Taylor movement it has been one of the writer's chief desires to re-establish, as a part of the Taylor System, a scheme of plant maintenance such as Mr. Taylor developed at Midvale. In the literature of scientific management the maintenance of standards has been emphasized, and as a matter of fact in all plants operating under task and bonus the maintenance of standards as to condition of equipment is to a considerable extent compelled.

Unfortunately, however, in most plants where the system has been installed the necessity of securing results to defray the costs of installation and operation of the system and the pressure to keep down expenses which do not directly serve to bring about increased production and decreased cost has usually prevented the complete working out and development of a maintenance system as a preliminary to the installation of task and bonus. By the time routing and task and bonus have been installed and these features working smoothly some sort of a makeshift and unsystematic scheme for repairs primarily, and to some slight extent for keeping machines up in good condition, has evolved itself, and it is very difficult then to make the management see the advisability of something more systematic and comprehensive which apparently involves expense and which in view of the fact that they are accomplishing, in their productive work, results which are more than satisfactory, does not appear at that time in the light of a necessity.

The writer's experience, in a plant which has been operating under the Taylor System for about ten years but without a properly worked out maintenance system, has been such as to impress him with the full importance of carrying out such a scheme as is described in this paper, and in the plant referred to he is now taking steps to have the details of the system worked out and put into operation.

His conviction is such that in any future installation of the Taylor System which he may direct he will insist upon the establishment of a maintenance system at the start of the work.

The details of this plan, that is, the forms, instruction cards, etc. are now being worked out in a large plant manufacturing stationery, and it is the writer's intention to have presented in the near future a supplement to this paper describing the mechanism through which the plan described is operated.

The writer's present object is to impress upon the members of the Taylor Society his convictions as to the importance of this long neglected but fundamental feature of the Taylor System. There is nothing original in this plan as it was fully worked out over twenty-five years ago. The scheme for the care and maintenance of belting which is carried out along the lines developed by Mr. Taylor and Mr. Barth in a majority of the plants operating under the Taylor system involves in a simpler form the same principles and mechanism.

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[1] A paper presented at a meeting of the Taylor Society in Boston, Mass., Friday evening, March 2, 1917.

[2] Vice-president, Tabor Manufacturing Co., Philadelphia, Pa.

Work under the Jurisdiction of the Works Engineer	Provision of Light, Heat and Power and Ventilation.
	Operation of Machine and Carpenter Shops.
	Operation of Maintenance Department. (See Chart No. 2).
	Prosecution of Development Work.
	Fire Protection
	Sanitation.

CHART No. 1

Maintenance	Grounds and Buildings including piping and wiring forming a part of the building.
	Machinery in all departments, including Line shafts, piping and wiring pertaining to machines.
	Small Tool Equipment, including machine accessories.
	Fixtures—furniture and other appliances not coming under the other heads.

CHART No. 2

Subdivision of Functions of Maintenance Department

The maintenance department is organized and operated for the purpose of maintaining the established standards as to equipment throughout the plant, upon which depends the performance of each productive operation in accordance with the instructions of the Planning Department, both as to the method to be followed and the time that such operations should consume.

Its function is *preventative* rather than *corrective,* and it is of the utmost importance that this viewpoint be kept constantly in mind by all parties concerned with the carrying on of the work of this department. To illustrate this it may be said (without any particular reference to this or any other particular plant) that the work of a maintenance or repair department has in the past consisted chiefly in repairing damage to machinery and other equipment after it has reached such a stage that it was no longer possible to operate even inefficiently the machine or equipment in question. Ordinarily, under the old scheme the responsibility for the condition of equipment was, in theory, vested in the shop superintendent, who in turn delegated this responsibility to department heads, and they in turn to the foreman. Under such an arrangement the Repair Department did not assume the initiative in making repairs or keeping equipment in order, but made repairs only upon receiving orders to do so or reports of damage to equipment from one of the executives referred to above. This resulted, in frequent instances, in machines being run long after they had gotten into such bad condition as to prevent their turning out their maximum production of work of the best quality. Frequently repairs were put off until a serious breakdown occurred, which prevented the machine being operated. The same may be said with reference to small tool equipment.

Under Scientific Management the Maintenance Department is operated in such a manner as to anticipate and prevent in the greatest possible degree loss in output and interruptions to manufacture as a result of machinery and equipment getting in bad condition or breaking down. Under this system the Maintenance Department assumes the initiative and the responsibility which are thus centralized in one department instead of being divided and scattered throughout the plant. Under the old scheme the maintenance of equipment was only one of a great many things which the executives (superintendent, department heads and foremen) had to look after and it was well or poorly looked after according to the importance attached to it by the various individuals and the amount of time which other pressing duties permitted their giving it. Under the new scheme it becomes the matter of foremost importance to men who devote their entire time and energy to it in a consistent and systematic manner.

The functions of the Maintenance Department may be briefly enumerated as follows:

1. The making of emergency repairs.
2. Systematic inspection of all machines and other equipment at such intervals as will insure the detection of any wear or getting out of adjustment as might result in a breakdown or in impairing efficient operation.
3. Making such adjustment, repair or replacement as the inspection may show to be necessary.
4. The keeping up of all useful records concerning machinery, such as drawings that are of service in making repairs or in planning work, inventories of machinery, fixtures and adjustments, etc.
5. The working out and development of such improvements or changes in machines, fixtures and tools:
   (a) As may be required in order to manufacture a new line of product, or—
   (b) Result in increasing production, reducing spoilage and improving quality.

(The work covered by items "a" and "b" will usually be initiated by the Planning Department or the Superintendent, and will be done in accordance with their instructions).

(c) As may result in decreasing liability or breakdown and necessity for frequent adjustment or repair.

(This will usually originate in the Maintenance Department as their inspections and records of repairs may indicate chronic weaknesses or defects in design or construction).

6. The operation of the Tool Rooms for all manufacturing departments and the maintenance in good condition of an adequate supply of small tools.

To appreciate fully the greater importance which work of this sort assumes under Scientific Management, it is necessary to have some understanding of the application of Scientific Management to productive work in the manufacturing departments, and to this end a brief explanation may be helpful. Each operation in the process of manufacture is analyzed and studied in the most minute detail, all unnecessary motions being eliminated, defects in materials corrected and such improvements made in conditions of machines and implements as may be necessary to permit of the work being done most efficiently. These conditions are established as standards and by means of elementary time studies the time that each operation or job should take under standarized conditions is determined. This is known as the "bonus time"—which is fixed in the Planning Department, in advance, for each operation on each order started in the shop. If an operator completes an operation in the time allowed, he receives not only his regular hourly pay for the time worked on the job, but a bonus in addition thereto as extra compensation for following the method prescribed by the Planning Department and as his share of the gain resulting from the co-operation which the system brings about.

As the time allowed for each job is based upon machines and tools being in first class condition, it will be evident that unless these conditions are maintained it will be difficult or impossible for the operators to earn their bonus, resulting in a loss to both the company and the operators. As a simple illustration of this point, take the case of a belt driven machine which is intended to make a given number of revolutions per minute, performing a given operation on an article at each revolution. If the belt is not maintained at the proper tension it will slip and the revolutions per minute will be reduced, with the result that it will not turn out work in the time allowed. Likewise, in setting a machine, if the bolts, nuts, screws and other parts to be adjusted in changing from one job to another are not in good working condition, and if the proper wrenches and other small tools are not provided and in good condition, this part of the work cannot be done in the time allowed.

The several functions listed on page 7 will now be taken up and discussed in the order given.

1. *Emergency Repairs*

Unfortunately, in spite of all that can be done to avoid breakdowns they will at times occur and no rules can be laid down to take care of this class of work. When breakdowns do occur, they will have to be dealt with according to the best judgment of the head of the Maintenance Department, who will give due consideration to the urgency and nature of repairs to be made, as well as to the possibilities of taking steps to prevent a reoccurence of the breakdown.

Breakdowns will be recorded on the "machine record" sheets.

It may be said that in a great measure the efficiency of this department will be indicated by the degree of freedom that is enjoyed from breakdowns necessitating emergency repairs.

2. *Systematic Inspection of Machines and Other Equipment*

Periodic inspection of all machines, tools and equipment of all kinds will be made by the Maintenance Department's inspectors. These inspectors will be directly under the control of the Maintenance Department. Their work will be laid out for them each day; detailed and specific instructions being supplied as to the machines to be inspected, the nature of the inspection to be made and the adjustments or minor repairs to be made, where necessary, at the time of inspection.

The scheme proposed contemplates to a great extent having the inspections made by men whose primary function is that of *inspection* and who will report to the Maintenance Department office any repairs that their inspection shows to be necessary, while the actual repair work will be done by others. The Maintenance Department will issue orders to their repair men or for parts to be purchased or work to be done outside covering the work that is to be done in accordance with the inspector's report. There will, however, be certain well defined exceptions to this rule, such, for example, as making certain adjustments of the machine, or replacement of worn set screws or similar small parts. These exceptions should include not only things which do not require making of any parts nor the dismantling of a machine, and which may be done quickly by the inspector alone in the course of his inspection. The instructions for the inspection should cover this point.

In order to carry out systematically the scheme of inspection proposed we must have certain printed forms, which with their use will be described further on.

Except in the case of the simplest machines or appliances, it will be found that certain features or parts of the machine require inspection and adjustment at frequent intervals, whereas other parts may require attention only at long intervals. In other words, there may be considerable variation in the periods of time that may be allowed between inspections of different parts of any given machine. For each machine (or group of machines of the same kind and size or class of other equipment such as small tools) there will be a record kept on suitably designed forms properly filled for convenient reference, there being one or more sheets as may be required for each machine or group. This will be known as the "Record of Inspection and Repairs."

These sheets will show: (a) the different sections of the machine to be inspected at one time; (b) the symbol of the instruction card for each of these sectional inspections; (c) the date of last inspection and name or initials of the inspector; (d) item letters or numbers designating on the instruction card the detailed subdivisions of the inspection that called for inspections and repairs. For each of these sections or parts of a machine to be inspected at one time, there will be a detailed instruction card stating explicitly what the inspection is to cover, how it is to be made, the tools to be used in making the inspection, and what adjustment, repairs or replacements are to be made at that time.

The intervals at which each of these inspections should be made must be fixed at first in accordance with the best judgment of the man having charge of this branch of the system and later modified as experience may indicate the necessity or desirability. The intervals should be short enough to insure the detection and correction of any wear or getting out of adjustment before it has become bad enough to interfere with either the quality or quantity of work turned out.

The instruction card will be placed in the Tickler to come out on the date when inspection is to be made, when it, together with a maintenance inspection order, which is also to serve when properly filled out as the inspector's report, will be issued to one of the maintenance inspectors, who will make the inspection and adjustments as ordered, turn in his report and receive an order and instructions for his next job.

When an inspection report is turned in by an inspector it will first be checked to see that all the work called for by the instruction card has been done. Any repairs which the inspection shows to be necessary (in addition to the adjustment of minor repairs made in connection with the inspection) will be reported by the inspector on a form provided for the purpose, which will state fully the nature of the work to be done. These reports will be passed on by the head of the Maintenance Department, and if approved orders will be issued for making the repairs. Inspectors' reports calling for work to be done must indicate very explicitly the nature of the work to be done, giving information so fully that it will not be necessary for someone else to again examine the machine in order to issue intelligent orders for the repair work.

After the orders for any work called for by the inspectors' reports have been issued, the following procedure will take place:

a—Make entries on "Record of Inspection and Repair Sheet."

b—Fix date for next inspection and make out inspection order.

c—Place new inspection order and instruction card in Tickler under date set for next inspection.

d—File Inspector's report under machine and instruction card symbol for future referenee.

Each day the maintenance inspection orders and the instruction cards for same will be taken from the tickler for that day and assigned and issued one at a time to the inspectors.

In this connection a small bulletin board such as is in use in the Planning Department should be used for the purpose of showing at all times the job on which inspectors are working and jobs ahead to be done by each.

3. *Making Adjustments, Repairs and Replacements Which the Inspection Indicates to Be Necessary.*

With the exception of certain points this has been covered in the preceding section.

So far as possible, parts that wear rapidly and require frequent replacement should be carried in stock ready to be put in place when wanted. This would apply to bearings, rolls which from time to time require truing up, etc. (Knives, dies, wrenches, etc. come under the head of tools and will be referred to under Section 6).

4. *Records Concerning Machines or Other Equipment.*

Under this heading we would include:

a—Perpetual inventories.

b—Drawings or machines, tools and other equipment, lists of parts of machines, etc.

c—Records of inspection, adjustments, repairs and costs of same.

d—Plant layouts, including floor plans showing locations of machines, and such other records as may enable this department to properly carry on its work and to supply to the other departments any information that may be needed in carrying on their work.

This department should be the custodian of all drawings, and tracings, maintaining suitable files for the same.

5. *Development of Improvements and Changes in Machinery, Tools or Other Equipment.*

(a) When a new line of product is to be brought out or alteration made in any existing line, the process of manufacture will be worked out by the Planning Department, who will determine what operations are to be performed, the sequence of the operations and the machines or work places at which each operation is to be done. The Time Studies and Instruction Card men in the Planning Department, in working up instruction cards for the operations, will decide what tools and machine attachments are to be used and will ascertain whether all of the tools needed are available in the existing tool room stock or whether it will be necessary to make certain new tools or modify existing tools. If the latter is the case, they will issue an order to the Maintenance Department covering the requirements and the Maintenance Department will proceed to make such drawings as may be necessary and do the work.

(b) When as a result of investigation and experiment the Time Study and Instruction Card man concludes that production may be increased or spoilage decreased by changes in existing equipment or by the use of new tools or appliances, they will issue an order covering the same to the Maintenance Department.

All orders for work of the character covered by the foregoing (items a and b) must be approved by the Head Time Study man, who will approve all drawings for the work before actual construction is started.

It is to be understood that in matters of sufficient importance the Head Time Study man will consult with the superintendent before approving an order and sending it to the Maintenance Department.

(c) Development work of another and important character will originate in the Maintenance Department. This may be broadly classed as making such alterations or improvements in the construction of equipment of all kinds or the materials entering into their construction as to increase durability, thus reducing the frequency with which adjustments and repairs have to be made, or to permit of more rapid operation. The "Record of Inspection and Repairs" and, in greater detail the inspection reports from which they are posted, will indicate those things which should receive attention of this sort. In making changes of this character the Maintenance Department will consult Head Time Study man on any points that may have a bearing on this work (time that work should take, method to be followed in performing a given operation, etc.) and will secure the superintendent's approval on undertakings involving radical changes or considerable expense.

It is not desirable that the superintendent should be bothered with having to approve the making of ordinary changes and repairs which would only waste his time and hamper the Maintenance Department in the efficient performance of the function for which it is organized. The superintendent will hold the head of the Maintenance Department responsible for the exercise of proper judgment in matters of this sort.

6. *Tool Room System.*

The organization and operation of the system for caring for and supplying the small tools and machine accessories of every kind used in the various processes of manufacture will be undertaken by the Maintenance Department.

The Maintenance Department in collaboration with the Time Study and Instruction Card men will standardize the various tools to be used, as to kind and condition, and determine the quantities of each that should be kept on hand to insure an adequate supply.

The Tools must be classified and inventoried and proper tool room facilities provided for storing them in an orderly and accessible manner when not in use.

A system for the issue and return of tools used only occasionally and for their inspection when returned and repair when necessary must be provided. In the case of those tools which remain continuously at a machine or in the operator's possession, provision must be made for systematically inspecting them and having new ones issued from the tool room to the operator and the old ones returned to be put in good condition.

Conclusion.

It has not been possible, nor has it been the writer's intention to work out the details of the Maintenance System in this report but rather to outline the whole scheme in such a manner as to make perfectly clear what will be required.

DISCUSSION

LIEUT. FREDERIC G. COBURN:[1] In discussing a paper one usually likes to find fault with some parts of it or to add to it. I find myself unable to do either of those things in the case of this paper. But after looking over the proof pretty carefully I thought that I might be of service by illustrating some parts of it, by examples of failure to observe these principles, and also by examples of benefits of observance.

About two weeks ago, I found that one of the men in our chain shop had a recent record of failures in tests. The foreman had recommended his discharge. I examined the man's working conditions. He was working at an oil fire and the oil had considerable water in it, and the air supply was about half what it ought to be. The dies in his hammer were misplaced, so that he was not getting a true link, and three of his helpers were green. There were a few other things of comparative minor importance. We have corrected all of those things and he is now doing good work again.

A case was reported to me, of the manufacture of a dresser top of heavy sheet copper; the copper was being worked by ship fitters, and it was considered that it ought to be done by sheet-metal workers. On investigation I found that the reason it was being done by ship fitters instead of by sheet-metal workers was that the only machine that the sheet-metal workers had with which to bend that copper was out of commission.

When I went to Philadelphia to the Navy Yard I found the circular saws (for wood) in poor condition. We hired a new saw filer, who came on the condition that we raise the wages for the job. The importance of paying higher wages for a saw filer had not yet been recognized there, to say nothing of recognizing the importance of having the saws in good condition; and so we raised the wages and we got the saws fixed. It took us six months to get the equipment in really good shape.

In that time we had introduced the Barth system for the maintenance of belts, and we simply applied it to the maintenance of the saws. That led us to the case of machines. Wood-working machines are generally poorly designed. They are light, and they are not so arranged that they can be oiled properly. We could not make them any heavier, but we could put them on stiffer foundations and put in oil cups, and then arrange for a periodic inspection.

We have in all navy yards traveling cranes of capacities up to 40 tons, which are ordinarily allowed to get out of commission before they are repaired; and as soon as a crane goes out of commission there is a great deal of outcry, because ordinarily we have not enough cranes to handle the work. So we fixed up a series of inspections,—monthly, quarterly, and annually. Each of those inspections was worked out in the form of a route sheet, and as we had a tickler cabinet we used that to run our crane inspections.

We had a case the other day of a man who had done a bit of bad work. He had punched slots in some angle bars, these slots being about a half inch wide and three inches long. I found that he had been given by the tool room a punch about a half an inch square, and had used a machine that was not adapted to the work. He should have been given a punch that was about a half an inch wide, and about one and one half inches long. Also he should have had a dead-beat gagged punching machine. The machine that he ought to have had was out of commission, and the one that he had to use was not in good shape.

Those things we did improve to some extent in Philadelphia, starting with the belt service as a basis. The advantage of that belt service we cannot magnify. As you all know, the price of leather belting has gone up, and we have considered the introduction of woven cotton belting at the Boston yard. We offset adverse opinions as to woven belting by a series of facts which we obtained from Philadelphia, where we had run a test of the woven belting. It started, if my memory serves me correctly, about four years ago, and on each of the belts under test we had a report from the belt records that was simply incontrovertible evidence that the woven belts were perfectly good, and in many cases better than the leather belts and certainly cheaper.

We have started to introduce the belt service at Boston. When we started we had four men whose sole job it was to repair belt breakdowns. After we had the service started and had given proper attention to some of the belts and had started the inspection, we found that we could reduce the number of belt men to two; which not only saved the wages of two mechanics, but cut the breakdowns in two, which is a matter of major importance.

In drop-forge work particularly I am impressed with the necessity for maintenance inspection. Drop-forge dies wear. Drop hammers develop side lash in the guides. There are various other ailments. In the manufacture of chains we have practically a drop-forge process. Recently on account of the difficulties that we had had, it was suggested that we have an inspection and report, at the beginning of every shift, on the condition of the dies. This afternoon the foreman told me that he found that the dies on one hammer were slightly misplaced, and he was very much worried about it, but that we could fix it in time—a matter that a few weeks ago would not have occasioned any interest at all—and yet it makes the difference between good chain and bad.

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[1] Naval Constructor, Navy Yard, Boston, Mass.

We have records on our dies that show the material of which they are made, the proper heat treatment, the date put in service, the length of time that each pair of dies is used, the product from each pair of dies, and so forth, so that we can forecast their lives somewhat and know about when to expect trouble from them.

The relation between maintenance of equipment and task work is referred to in the paper. I had a very interesting case of it at Philadelphia when we introduced task work and bonus to scaling paint. Knowing that there was going to be a great deal of trouble when we got task work under way, I spent a great deal of time getting the equipment ready. We started with the power-house and the air compressors and the distribution lines, and the separators to get water out of the air, and the provision of good hose, and good couplings that would not leak, so as to get the pressure and the volume of air at the hammers; and then we fixed the hammers the best we could, and doubled the stock of tools. By time study, we investigated the shape of the chisel. And then, after all that, and after trying to impress on everybody's mind the necessity for having everything right, we started task work, and the next morning the trouble began.

The men who had been repairing hammers did not know what a day's work was in repairing hammers, until they got to working for task workers who had a definite task to do, and where they had to have everything right to do it. I knew it was coming, but we could not get anything under way until we got the task workers to help us.

As to the relation between maintenance and scheduling. The scheduling of work, I have found, is of enormous importance, and we have been developing it. If you count on performing a particular part of the work on a particular machine at a particular time, and the machine will not work when you get ready to use it, it not only upsets that particular job, but a whole lot of other jobs. If by inspection previously you can anticipate those troubles and correct them, it will save time and avert confusion. I don't know how many of us here have really tackled the job of scheduling work—laying it out far in advance of all the men and all the machines in a fair-sized plant. But as soon as you do try it you will find that the knowledge that you can positively rely on the presence of your tools and of your men and of their all being in good order is of primary importance. You cannot have it unless you make this inspection in order to correct the trouble before it happens.

There are many other things tied up with this—such as the cost of idle equipment, and the reduction of output and hence the reduction of earnings.

MR. ROBERT T. KENT:[1] A suggestion might be offered in regard to the instruction card for the periodic inspection. In inspecting certain lines of equipment there are specific questions which have to be answered in regard to that equipment. These questions should be printed on the report blank. Very frequently a man will over-look some item, unless he has to make a definite mark on a card or on a report. If he is simply told by the instruction card to inspect certain parts, he may pass those parts through carelessness or laziness. But if he has to answer "yes" or "no," or take a measurement and make the entry on a blank that is already provided, and if he is required to fill out every space on that blank, he is very apt to make a full report and look into every item that he is required to inspect.

I don't believe that the importance of inspection and maintenance of equipment is fully realized. I have had the opportunity in the last few months of studying a lot of production time studies. These production studies are time studies extending from one day to several days, and they note every interruption to the manufacture and state the cause thereof. And in examining these production studies which came into my hands I was impressed with the fact that nearly all the delays which occurred were avoidable and preventable. If there had been proper maintenance inspection prior to the operation of the machinery the production and actual output would have been about 20 per cent greater than the studies that I was examining showed.

I think that a paper such as Mr. Hathaway has presented is merely the starter of a whole series of papers of a similar character that should be presented before this Society. What we want is papers dealing not so much with the theory of scientific management—we have lots of text books on that—but we want the practice.

MR. WILLIAM O. LITCHTNER:[2] At the present time the great amount of business which almost all manufacturing concerns have on hand has made it necessary to run all machines to maximum capacity, and in fact, to over-capacity, and naturally this has been the cause of a great increase of machinery repair expense. You might say that the easiest thing would be to put on more people to take care of this increase in repairs; but we all know that on repair work it is impossible to put on a big gang of men and expect to get out work in proportion to the number of men put on. Besides this, it is absolutely necessary to have some kind of a follow-up system, just the same as if you were manufacturing a product, in order to get it out at a reasonable cost.

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[1] Consulting Engineer, New York City.

[2] Consulting Engineer of Thompson and Lichtner, Boston, Mass.

I have been working on this problem of systematizing the repair and maintenance department of several large manufacturing concerns and have gone into this question quite deeply. This field of management work is the one which in even well systematized plants has hardly been considered, with the consequence that we are just now commencing to scratch the surface. It is questionable just how far it is economical to go in systematizing the repair and maintenance department which handles the repairs and maintenance of a shop using a diversified lot of different kinds of special machines. In a great many cases, repairs must be done at a moment's notice so as to put the machine into operation again in the minimum time. It is entirely different from a straight machine problem.

Under the old plan of doing things, anyone can make out an order on the repair and maintenance department for work they wish to have done whether it is absolutely necessary or not, and in due time, some carpenters or machinists arrive on the job. When the carpenters, for instance, get out there, they find that the work the foreman wanted to have done requires some special tools or materials, so one or all of them return to the shop to get them and then, ten chances to one, they will not get all they need and have to send again before completing the job. This plan is not only costly but it holds up production by *not* keeping the machines in running order. With orders coming in in this way, is there any wonder that we find the repair and maintenance department in a chaotic state and doing the work which is not really needed the most, but the work wanted by some official on account of his authority, or the work wanted by some foreman who is the most persistent. How many concerns could exist nowadays, or could tolerate such a procedure in getting out their regular product of goods?

The plan which I am following in starting on a problem of this kind is first to get out a list of names of parties who can send in orders on the repairs and maintenance department where all the orders for work are received. This department, upon receipt of an order, makes out a repair or construction order for the work, provided the cost of the work is not over, say, $20.00, in which case the signature of an officer of the company is required before the order is acted upon. An inspection ticket is made out with the order which is given to one of the inspectors who looks up the job and makes a detailed report of what is required, which includes a bill of material, necessary measurements, etc. From this inspection report, the planning department makes out the necessary route sheets, tickets, stores issues, and sends the party who made the requisition a promise as to when the job will be completed. This procedure of course is not followed if the job is an emergency job, in which case the men nearest the breakdown are generally called upon to do the job. I have found in every plant where I have taken over the repair and maintenance department, that of all the repair jobs that came through previous to our installation work, 50 to 75 per cent of them were considered as necessary emergency jobs while now this percentage has been reduced to 5 per cent. The work is assigned to the workmen in the sequence of their importance and finally daily working schedules are laid out for each of the men according to their trades. The repair and maintenance men call for their tickets and instructions and return them upon their completion. The ideal plan would be to not only assign definite work to each man but to have the work done as a task, that is, predetermine the amount of time it should take a man to do the job, and if it is completed satisfactorily in that time, pay him a bonus. This last step has not yet been accomplished to my knowledge but is is only a matter of months before some of the firms will have accumulated enough data on this class of work to be able to very accurately predetermine the time for doing new work.

I want to call your attention to a very adequate inspection system to be used with the above.

A. Inspection of Repair Work.

1st. Send an inspector, sometimes called an inspection engineer, to determine materials required for job, dimensions, etc., as cited above.

2nd. Send an inspector to job where workmen are just starting a job to see that the work is started right and that all tools and materials are on job. This ordinarily is the foreman who used to direct his own men and work before the planning department was established.

3rd. Send the inspector under 2nd head to make a final inspection of the work which was finished.

B. Inspection for Maintenance.

An inspection for the maintenance of a plant is the one way for reducing the amount of repair work required to be done in any plant and will make the amount of breakdowns almost negligible. The method of procedure to develop this inspection is to have the master mechanic go over each machine, pump, engine, belt, etc. in detail, and note exactly what is to be inspected on each and how often it is to be inspected. He then gets out detailed instructions for the inspector of each of these items. These are given to the planning department who issues inspection tickets and corresponding instruction cards for each job to be inspected. This inspection card is then filled in by the inspector according to his findings. Upon its return, master mechanic goes over these cards and for all necessary repairs he issues repair orders to have the work attended to. These maintenance inspections must be made generally when the machines are down at night or over Sunday although in some cases we require the inspector to interview the operator on machine to get his viewpoint about how machine is running. In other words, you have to recognize the fact that the man or men using a machine day in and day out can tell pretty well as soon as the slightest noise or stiffening of a machine occurs.

The question about having tools with machines is another large item, and in the studying of routing for inspection that can be brought out. At one printing establishment we found only one kit of tools for about 12 machines, and the men spent about three-quarters of their time in getting their machines ready. It took them eight hours to make ready one press, and out of the eight hours, three hours were spent in hunting up tools. By an expenditure of possibly $100.00 all the machines could be equipped with all the necessary tools, which would mean a saving of at least this amount weekly.

Mr. James F. McEnnery:[1] I came here tonight as the guest of our Production Manager, Mr. Ballou, who is a member of your society, and with no other thought in mind than the one we see painted on every railroad crossing-bar, namely, to "Stop, Look and Listen," when to my surprise I am asked to stand before you and say something on a subject which deals with me very closely in my position at our factory.

We have an installation of scientific management, placed there by Mr. Barth, that is giving us a result we would never have been able to attain in production and delivery of finished product were it not for this same installation, and after listening to the very instructive paper read by Mr. Hathaway, and having had experiences similar to some he told us about, it has brought still more forcibly to my mind this matter of maintenance and repair of machinery and tools, and its direct relation to production and delivery of finished parts.

While it is not my experience, as it was that of Lieutenant Coburn, to have men waiting for me at the gate, I do have men waiting for me as I pass through the factory, to notify me that they have a task to perform which specifies the turning out of so many pieces per hour, and that the belt is continually slipping, or the feed is not working properly, or the fixture is not in good condition, and they ask how they are going to make premium if such troubles are allowed to continue, and threaten to leave if they are not rectified. Of course, we do not want this to happen, nor do we want this spirit of annoyance to hamper them while endeavoring to earn their premiums, for then the company suffers in output, and the disturbed condition of the man prevents him from doing his best. The production manager has his troubles immediately this thing happens, and the manager and the sales force make his life miserable for him, so the train of ills that follows in the wake of a poor maintenance department is enough to wreck all the rest of the good work scientific management may produce. So, while as yet we are in a crude way as far as maintenance is concerned, we are endeavoring to get going in the right direction with this all-important part of our management. I can see we must deal with it just as specifically as we have with our speeds, feeds, time studies and all the other details that go to make a thorough installation of scientific management.

The results we get from this maintenance department of ours are shown up very forcibly in the returns in production we are able to get from our machines. While this result is also helped by good operators, by well applied speeds and feeds, yet it would go all for naught, if the equipment and tools were not kept up to a high state of repair. I can see how much more we can get from our equipment if we but develop in this matter along the lines Mr. Hathaway so ably presented.

The matter of setting tasks in this department seems rather a difficult one to me at this moment, yet I must say if this is possible, we should be as well fitted to put it in force as anyone, because we try to keep our machinery of the same type; this is, we adopt a certain type of machine to do our work, then stick to that type when we purchase others, making it easier for an inspector to follow the weak points and keep them tuned up, and also be able at the same time to fix a time for such repairs. I have given this matter considerable thought, but I must confess that Mr. Hathaway's paper shows me how little I have accomplished after all, and how much I must do to get it up to the plane of the rest of our installation.

I was interested to hear the remarks of Lieutenant Coburn, in regard to his experience with belting, and along that line I would like to tell of an experience we have had lately that may be of value.

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[1] Universal Winding Co., Providence, R. I.

We have two sets of machines of the same type which came from a western firm. The first set which we received were equipped with leather belts, and when the second set arrived, we found those equipped with cloth belts. Now, with the first lot we are having trouble with the belts slipping and stretching, while on the other lot, with the woven belts, we get a much more regular speed, a better production, and our time studies work out better. I wonder whether this is a condition any other of you gentlemen have ever experienced. It would interest me greatly, if there are any here this evening who have this problem to contend with, to hear their views on the subject, as this matter of belting is going to give us considerable thought and expense before we are through with the problem of upkeep and maintenance.

Mr. Gustav E. Schulz:[1] There is one point I should like to bring out, that possibly Mr. Hathaway did not fully bring out in his talk on maintenance, and one I think that the new members and those here who are not members should understand. Some of us have been maintaining conditions for a considerable time on small tools and part of a plant's equipment. Some visitors here may get the impression that we do not do that. I do not know whether Mr. Hathaway made that point clear, or whether my statement is worth while; but we do maintain the tools, and many features of the machine tools, including belting. In other words, under Scientific Management there is a condition determined under which the job is to be done, and under the Taylor System that condition is maintained at least up to the point of present control of points that affect the job directly.

But this does not include maintenance as a matter of prevention on some parts of the machines. Parts not covered by this maintenance can be properly analyzed and the maintenance as a preventive can be taken up. We might take an engine lathe and analyze and find the weak points. We can find the weak points on some of our machinery, and that will give us a lot of information. It is largely those things that we haven't control of, because they do not come under a regular inspection. The point that I want to make is that we do maintain the other standards. I have been requested to put a question to Mr. Hathaway. What is there in Mr. Hathaway's method for the maintenance of machinery different from the method, first, of ordinary management, and second, of systematized management, so called?

Mr. H. K. Hathaway: I have not had any personal experience with the so-called systematized management, and I don't know anything about it. I have had experience with so-called ordinary management—and I have had experience with scientific management. Under ordinary management there is no such thing as the sort of maintenance I had in mind in presenting this paper tonight—that is, *maintenance for the purpose of preventing interruption to manufacture* and the prevention of breakdowns. Under the old style of management the custom is to *wait until something breaks down,* and then fix it. That is the old style. What I am proposing is not something new at all—it is something which does not exist. As Mr. Schulz states, we do under scientific management in the plants operating under the Taylor System maintain our equipment; and as Mr. McEnnery brought out we do maintain our equipment. Otherwise the earning of a task and the earning of a bonus would not be possible.

The point I am making is that we do not carry it out in a systematic manner. We do not do it as thoroughly and in a manner so as to avoid annoyances to anything like the extent that we should. What I am proposing is in anticipation of breakdowns—anticipation of troubles—and not waiting as we do under the old-style management, until something goes wrong, and then going and fixing it.

A comparison might be made with a fireman. We maintain fire departments in our cities. When a fire breaks out we rush the firemen there to put the fire out. There is such a thing, however, as fire prevention. And fire prevention is more important than fire extinction.

Now, Mr. Schulz pointed out in his discussion that we take care of the small tools. Mr. Schulz has just completed overhauling and rearranging what I regard as the best tool room in the United States. I thought it was the best before Mr. Schulz took hold of it, and I think it is by far the best at the present time. Now, what he said with respect to small tools applies and holds good in the case of machine shops, because there we are compelled to keep up our small tools and provide a system of keeping them up. In the machine shop we are required to provide a system for keeping our belts up to proper condition and tension, and we do it in a very scientific manner. But when it comes to the machines themselves, in the Tabor Manufacturing Company, of which I happen to be an officer, I know men are earning their bonus on the machines, but they are in some instances having difficulty to do it, where it ought to be perfectly easy, because we have not looked far enough ahead and taken care of those machines in a sufficiently systematic manner. That is, we have let them go on and the machines get just a little bit out of order—the spindles a little bit out of alignment—the shears on the lathe a little bit worn—not enough to prevent a man from earning his bonus or to prevent him from doing good work. But if you take the man off that machine—the man who has been running it right along in that condition, who is a man of long experience and who therefore has learned just how to humor the machine in order to allow for those slight inaccuracies of alignment and wear—and put a new man on there, who may be a perfectly good mechanic, it will be a week, two weeks or three weeks before that fellow can earn his bonus. Now, if the machine had been kept in condition through systematic inspection and systematic adjustment, the new man would go in there and earn his bonus right off the bat.

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[1] Tabor Manufacturing Co., Philadelphia, Pa.

As an illustration of the old way, some few years ago I took a place as superintendent of a concern that was manufacturing steam engines. In that shop there was a "bull lathe" for turning fly wheels—an old-fashioned affair. There are very few of that type of lathes in the country today. In the turning the diameter of the fly wheels did not have to be accurate, but of course it had to be fairly round. But when it came to the bore, that bore had to be a press fit on the crank shaft. There was only one man in that shop of about 150 men who could bore a hole in a fly wheel with the bull lathe and get that hole straight and round. Now, this man was somewhere around 75 years of age. He had been brought up with that lathe—he had lived with it—and he knew every tooth in its gears and every groove and scratch in its bearings, and he knew, as the tool advanced along the bore just when he must hit it a tap here or let it out a little for a tight place there, and he could accurately bore fly wheels with that machine. Now, that is going to a ridiculous extreme. If that man had left or had died, they would have had to have stopped building engines, because no man in the place could have bored fly wheels.

Now, then, in that shop nobody ever thought of doing anything to a machine until it broke down. Nobody ever thought of repairing a belt until the belt would not turn the machine over. In fact, each man was expected to look after his own belts and make his own repairs. That was really a remarkable shop. It was the only shop that I ever came in contact with where we had no "non-productive" labor. The men on the machines made their own repairs and moved their own machines from place to place, and repaired their own belts. If Bill over there on his machine needed help, John would leave the machine that he was on and go over and help him—thorough cooperation! This is an old story, and you may have heard it before. But when I went there the manager, who was a young man, as I was, said that the way to make money was to keep down the non-productive expenses, and he hammered that into me, and I said, "Yes, that is right, let's keep down the non-productive expense;" and we had got it down to the point where there was no non-productive expense, and in less than two years time the concern failed. I am not giving you this non-productive instance just for fun, but because it carries a real lesson. It amuses me now although it did not amuse me then, because I took it very seriously. The persistence of the idea of keeping down "non-productive" expense is one if not the chief reason why we have had difficulty in carrying through the plan I have talked about tonight.

"Why should we go to this expense?" say our clients, "All the workmen are making their bonus nicely—what is the use of having a machine inspected when it is working all right?" That is the way our clients look at the matter and we cannot get it done.

You must bear in mind that before making time studies and putting the work on task and bonus all of the machines were gone over and put in first class condition.

Yes, we have maintenance departments. But as to having a man to go over a machine when it does not have anything apparently wrong with it, to find out what may be wrong with it, when nobody says there is anything the matter,—that they cannot do, because that is non-productive expense.

But let them go on, three, four or five years after the system has been started. Presently we find that this fellow on a lathe, where they have always made their bonus, is having difficulty to make it, and he is falling down; or you may have to put a new man on there, because the old man has been advanced to another machine, and the new man cannot make his bonus, in spite of all that is done to help him. And if you look into it you will find that that machine has little by little gotten out of adjustment and out of condition, and that that is the reason why the new workman has not been able to make his bonus and is not getting his work out on time.

Now, what I am proposing tonight is nothing new. It is something that is being done in a way, but it is not being done right. It is something that Mr. Taylor started 30 or more years ago at the Midvale Steel Works. I happened to see what was left of it when I was there.

Mr. R. R. Keely:[1] With a client of mine I have just gone into this problem. We are scheduling the work, and that brings up the matter of the repair and maintenance of machines, because if we assign a definite piece of work to a machine, and then the machine goes down, there is trouble because of that repair work. I have formed in this particular plant what we are calling a standing committee on standards, made up of three heads of departments, one of them the chief tool designer, another the maintenance engineer, and the other the supervisor of time study. These three men recommend standard practice. The first thing coming up in studying an operation is whether the operation is necessary, and if it is necessary, whether the equipment is right or not. That involves the tool design, and then the maintenance of equipment. Our maintenance engineer has not only cut down the size of the repair gang, but has greatly improved the quality of their work. We have in use an "idle time card" on the face of which is designated various possible causes for delay. The proper item showing the cause of the delay is checked on this card and the card sent into the office. This gives definite information, and on this, the maintenance engineer acts in making the repair, if such is necessary. The maintenance engineer has an inspector devoting his time exclusively to inspecting machines with the object of preventing shut-downs. He is assigned definite departments daily, and makes his report on a printed form where all the points to be looked after are listed, by checking each item as inspected, and making notations where necessary. By this method, he does not overlook any points in his inspection trip. He also makes required minor repairs himself as he proceeds in his work. On this written report, as a basis, the maintenance engineer assigns the jobs to the proper men in the repair gang.

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[1] Consulting Manager, Philadelphia, Pa.

We are to have a belt machine, which Mr. Hathaway's company is building.

The maintenance engineer is in charge of the entire physical upkeep of the plant. This includes the repair foreman, master mechanic, the electrician, the powerhouse engineer and the millwright, and an inspector under his direction.

The small tool repair we have not found fit to put under the maintenance engineer, because so many of the tools require tool-room work. We have left the tool inspection and repair of all tools directly under the tool-room foreman, and he in turn is directly under the supervision of the chief tool designer. Therefore, the matter of the small tools is not under the maintenance engineer.

Repair parts were being handled in all kinds of ways under the old scheme. The parts that were not needed on a machine, together with new repair parts, were chucked away in a room. We are now standardizing the kinds and quantities of repair parts to be carried, and have put these in charge of the store keeper, to be delivered only for repairs on the proper order of the maintenance engineer. This not only reduces the investment in new parts, but puts them where they can be found quickly when wanted.

We are using all leather belts, and whenever a belt is badly worn, it is sent away to the factory, remade, properly oiled, glued and sewed together. With the present high price of leather belting, we find that this practice materially reduces our bills for leather belting.

MR. FRANK ADAMS BAKER:[1] The Company with which I am connected has started a system of machine inspection that is giving good results. The inspection of various classes of machines is made weekly, special attention being paid to the safety devices. Reports to be filled in by the inspectors are made up by listing vital parts of the machine as clutch, spur gear, bearings, glands, steam connections, etc. These words are checked to indicate that the parts have been examined. As the machines are brought into better condition, it will of course be necessary to change the form of these reports, but for the present they are serving their purpose in a very satisfactory manner.

MR. SANFORD E. THOMPSON:[2] In listening to the criticisms that are being made tonight by scientific managers themselves, one almost might say that shops operating under scientific management are handling their repairs in exceptionally poor fashion. One might almost think, also, that the bonus workers were being hard put to accomplish their jobs. Now, why do we hear such remarks from these men, men having as fine running shops as any in the country? For this reason. In a shop running on old-fashioned, haphazard principles, where a belt breaks and it is considered an act of providence and something that cannot be avoided, where if a machine gives trouble the operators simply have to sit down and lose their piece rate or their time—for that is the old-fashioned way of doing it—in that kind of a shop bad management in handling repairs does not show up. Breakdowns are expected. No record is kept of them. But just as soon as you organize the shop so that it is operating under exact standards and is running smoothly, where the work is laid out for the individual men, and they are expected to do a job not only in the right time but in the best fashion; then it is that even small defects as well as large ones in the maintenance department show up quickly and clearly and the maintenance department is forced to raise itself to a plane which compares with the rest of the mill or factory.

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[1] Eastern Manufacturing Co., Boston, Mass.

[2] Consulting Engineer, of Thompson and Lichtner, Boston, Mass.

Also, in connection with the development of bonus work the conditions are similar. In the old-fashioned way of doing it where a man is working by the day or by the piece he simply loses his time when the machine is shut down. The management's attention seldom is called to the defect, they know nothing about it, and the man realizes that he must submit or lose his job. Now with more exact standards and bonuses, the slightest loss of bonus automatically is brought to the attention of the managing department. Consequently, you have an intimate co-operation. If a machine is down for repairs and a man loses his bonus through the fault of his machine, a kick is expected, a "damage report" comes through as a matter of routine and the machine must be fixed. And by making this trouble the men not only do themselves a good turn, but also are all the time doing the management a good turn by showing them that they must keep up to their job and handle their machinery and their methods in such a shape that the whole shop can be worked efficiently.

MR. HENRY REED MALLORY:[1] I should like to ask a question. In a factory where there are a great many old machines, the inspector in going through and making a thorough inspection would probably have to dismantle a whole machine and go through it in order to find out all the faults in it. Here is one point I should like to bring up. Is it necessary to tear down the whole machine and examine every part of it, and then find out that you probably have to buy a new machine, rather than to make all the new parts for it?

MR. H. K. HATHAWAY: I want to comment on what Mr. Thompson has said. I may have given you the impression that we who are interested in operating shops under scientific management are not keeping our machinery up so that the men can earn the bonus. I may perhaps have exaggerated that condition. We do keep them up after a fashion. What I am complaining of is that we really do not keep them up in a systematic way. Now, Mr. Thompson says, and very properly, that if we do not keep them up so that the men can earn the bonus, if the condition gets too hard for the men to accomplish their task they will kick and will compel us to keep up the machines. Very true. But why should we shoulder that onto the man? Why should we make conditions for him so difficult that he comes to us and forces us by his persistent complaints to do something that we ought to have done in the beginning, so that he never would have to complain about the condition of his machine? That is the point I want to make. And that is what Mr. Taylor had in mind with the maintenance system as he developed it at Midvale in the early days: to prevent things getting in such a condition as to make it difficult for a man to earn his bonus. Of course one of the finest features about the bonus is that it does force the management to live up to its responsibilities.

Now, there is another point that I started to refer to in connection with Mr. Schulz's discussion, and I got off the track. Mr. Schulz pointed out that we do take care of the small tools in a machine shop, and in a machine shop we do, I should say, take care of them as a rule very well, and we take care of the belts very well. Now, in plants that are not machine shops—and there are as many plants today under scientific management in other lines of industry as there are in the machine industry—in those shops the tendency is to neglect the small tools. In fact, the majority of them will tell you, if you ask them, in speaking of tool rooms or tool maintenance system, "We have no tools in our plant—we do not use them." And you go around and size up any workman, and you will find that the pockets in his overalls are just bristling with screw-drivers, wrenches, pieces of wood, and one thing and another, that he uses.

As to Mr. Mallory's point, the condition of the machinery as a whole at the time the operation involving the use of the machine is put on the bonus, when the time studies have been made, ought of course to be looked into. It is almost invariably necessary to completely over-haul whatever machinery you are going to bring under the task and bonus system. After that has been done once it ought not to be necessary to completely dismantle the machinery to inspect it. As I tried to point out in my paper, there are some parts of the machine which wear rapidly, which should be looked after at frequent intervals. There are other parts which do not call for inspection, perhaps, except at intervals of three or four months, and some parts perhaps once a year. If a machine is so old and in such a condition as to cost more to repair it than a new machine would cost, then of course the obvious thing to do is to put in a new machine.

Mr. McEnnery, of the Universal Winding Company, referred to the question of tasks. I had not in this matter looked so far ahead as to set tasks for maintenance work. I do not know whether it might be done or might not. There are some parts of it, no doubt, that could be handled on a task basis. But I should be perfectly well satisfied if we could only have it done systematically, and without waiting for the workman to come to us and say, "Here, I cannot make my bonus on this machine, and if you do not fix it up I am going to quit." That is the point I make. The management should get under its responsibility.

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[1] Barcalo Mfg. Co., Buffalo, N. Y.

As to the carrying of a stock of parts, whether that stock should be carried by the maintenance department or carried in regular stores, I think is a matter of inferior importance. If you have a storekeeper's department, I suppose that is where they should be carried; and if not, the maintenance department should carry some stock or stores.

MR. GUSTAV E. SCHULZ: There is one other point I should like you to bring out. When you do some these things—when you inspect and repair the machines—you get a much stronger machine, and the man working on it gets the benefit of that.

MR. HATHAWAY: Yes, in putting a machine on task and bonus, almost invariably after we have gone over it and put it in first-class condition we have a better machine than we had before, because we have strengthened it.

MR. SCHULZ: And that is true of maintenance, too?

MR. HATHAWAY: You mean as to the company's break-downs?

MR. SCHULZ: Yes.

MR. HATHAWAY: Mr. Taylor used to say that if a machine broke down two or three times at the same point, that was nobody's fault, but if it broke down four or five times that was the fault of the man in charge of maintenance.

THE TABOR BENEFICIAL SOCIETY[1]

BY HERMAN J. HUTKIN AND NATHANIEL JOHNSON[2]

People employed in a plant do not, as a general rule, get together in a proper spirit of mutual and helpful cooperation unless they have formed from among themselves an organization devoted to such a purpose. Such an organization should be managed exclusively by the employees themselves.

Working people as a rule look upon anything in the line of welfare work done for them by their employers as charity, and they usually look with disfavor upon anything which may savor of charity being done for them. They only enjoy fully such benefits as come from their own efforts.

There is such an organization at the plant of the Tabor Manufacturing Company in Philadelphia, Pa., and it is the intention of the writers to give a fairly complete account of the causes leading up to the formation of this organization, its purposes, and activities.

Before this organization was formed, if an employee was injured or became ill, unless he was one of those who had been able to set aside a sufficient amount of money to guard against such misfortune, he was inevitably set back financially, and as there was no scheme in effect to take care of any such cases, it was necessary to let him work out his own salvation so far as financial relief was concerned. If he was fortunate enough to have any friends who were popular throughout the plant, and they in turn were willing to do so, a scheme of some sort—such as a raffle, collection, etc. — was usually gotten up whereby enough money was collected and turned over to the sick or injured man to help him out for a while. If any man who was not popular tried to do this sort of thing for an injured fellow-employee he almost invariably netted nothing but his trouble.

Men on one floor or in one department usually had nothing in common with men on another floor or in another department, and in some cases did not know, when meeting each other outside of the plant, whether they were fellow-employees or not.

As a result of some men getting help in times of illness and others none at all, several of the men got together in April, 1909 and formed an organization under the name of the Tabor Yearly Beneficial Society for the purpose of getting the men to know each other, and for the purpose of providing for the relief of any employees who became ill or were injured and were unable to attend to their daily work, and also, in the case of a death, for the proper burial of the deceased. All employees of the Tabor Manufacturing Company were eligible to membership. The dues were ten cents a week, a sick benefit of five dollars a week was paid to any member ill or injured upon presentation of a properly filled out physician's certificate, and a death benefit of seventy-five dollars was given. Sick benefits were paid for a period of seven weeks, and no benefits were paid for a fractional part of a week. If there was not enough money in the treasury to pay benefits a pro rata assessment was made.

Where the illness was a prolonged one, exceeding the seven weeks provided for, weekly subscriptions were taken up to help take care of the member. A case in point is that of a man who was ill for over three months, during which time the Society got enough together each week to tide him over without his getting too much into debt. (This man left the employ of the Tabor Company shortly after he became well again). In this way every employee of the Tabor Company who was a member of the Society was sure of finanial relief in time of illness.

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[1] A paper presented at a meeting of the Taylor Society in Boston, Mass., Saturday afternoon, March 3, 1917.

[2] Tabor Manufacturing Co., Philadelphia, Pa.

At the end of the fiscal year, if there was a surplus in the treasury, a pro rata division was made and distributed to the members, and the Society was then organized anew.

By this time, through the meetings of the Society, the various employees of the Company were no longer strangers to each other, and after having tried out this organization for a few years, came to the conclusion that it was a loose and inefficient way of doing business, and in April, 1911 a permanent organization was formed under the name of the Tabor Beneficial Society, and all money received from dues was to remain with the Society permanently. This Society is still in existence and has given great satisfaction to all concerned, and it is this Society that the writers have had in mind in presenting this paper.

Anyone in the service of the Tabor Manufacturing Company is eligible to membership in the Tabor Beneficial Society, from the president of the Company down, provided the applicant has been in the employ of the Company not less than one month. Membership in this Society is *not* compulsory, there being no discrimination in the attitude of the members of the Society toward those employees who are not members.

There are 170 people at the plant of the Tabor Manufacturing Company's plant, of whom 166 are male, and 4 female. At the present time there are 160 male members and 2 female members in the Tabor Beneficial Society.

The Tabor Manufacturing Company cooperates with the Tabor Beneficial Society by paying in to the treasury of the Society, each week, an amount equal to the total amount of dues paid in each week by the members of the Society. The Company does *not,* however, interfere in the management of the Society's affairs, while on the other hand a member who happens to be an official of the Company is not discriminated against.

The purpose of this Society is the relief of its members in case of illness, disability, or distress, and in case of a death, the proper burial of the deceased; the conservation of the health of its members; the promotion of good-fellowship, and the fostering of a proper spirit of cooperation.

The affairs of the Society are administered by a president, secretary, treasurer, and a board of seven trustees. The president is elected from the ranks of the employees, as are also the secretary and six out of the seven trustees. The seventh trustee, however, must be an official of the Company who is also a member of the Society, and he represents the Company. The paymaster of the Company is, as a matter of convenience, the treasurer of the Society.

The weekly dues of the Society are fifteen cents a week, with an entrance fee of fifty cents. Each applicant for membership must sign a Power of Attorney (see Figs. 1 and 2) giving the Treasurer of the Company the right to deduct from the applicants weekly earnings the weekly dues of the Society. The treasurer of the Company then turns over to the treasurer of the Society the money collected. In this way there is no chance of any of the members getting in arrears in the matter of dues. However, a member may pay his dues for the entire year in advance if he wishes to do so.

Fig. 1a (front)

PHILADELPHIA, December 4, 1916

I hereby apply for membership in the **Tabor Beneficial Society.** If accepted I agree to be bound by the By-laws of said Society.

Signed John J. Jones,
Address 1745 North 18th St.,
Age 23 Occupation Clerk

I designate as my Beneficiary under the By-Laws of said Society:
Name Mrs. Anne Jones
Address 1745 North 18th St.,
Related to me as Mother

Witnesses:
H. Sting
H. Roller

(OVER)

Fig. 1b (back)

THE TABOR BENEFICIAL SOCIETY

Employees of the Tabor Manufacturing Co. are eligible to membership

Initiation Fee .... 50c.
Dues .... 15c. per week

BENEFITS

Sick Benefits to Salaried Members .... $5.00 per week
Sick Benefits to Unmarried Members on hourly rate 7.00 per week
Sick Benefits to Married Members on hourly rate 10.00 per week
Death Benefits $75.00

Any information desired can be obtained from the Secretary of the Society, who is also authorized to receive all applications for membership

Fig. 2.

POWER OF ATTORNEY

Whereas, I John J. Jones, have become a member of the Tabor Beneficial Society, and whereas, I am an employee of the Tabor Manufacturing Company, and expect as such, from time to time, to become entitled to wages.

Know all Men by these Presents, That I do assign to the Treasurer of the Tabor Manufacturing Company, in trust for said Society, so much of the wages which, from time to time, I may hereafter earn in said employment, as shall be necessary to pay all sums in which, as a member of said Society I may become indebted; and I do nominate, constitute and appoint him my true and lawful attorney, for me and in my name, to demand and collect from said Company and to receipt for so much of my said wages as, from time to time, hereafter, shall become necessary to pay the dues which may become payable by me by virtue of my said membership.

In Witness whereof, I have hereunto set my hand and seal, this 4th day of December, A. D. 1916.

Witnesses: John J. Jones
H. Sting
H. Roller
SEAL

Sick benefits are paid for a period of not more than ten weeks in any one year, and are divided into three classes:

Salaried members, married or single.
Single members on hourly rate.
Married members on hourly rate.

The rates of payment of sick benefits are as follows:

Salaried members receive five dollars per week.

Single members on hourly rate receive seven dollars per week.

Married members on hourly rate receive ten dollars per week. In no case do the regular benefits paid per week exceed the member's weekly earnings on hourly rate.

The death benefit amounts to seventy-five dollars, and is the same for all classes of membership.

When there is a surplus in the treasury the Trustees are entitled to utilize this in any manner they see fit for the relief of members where something more than the payment of regular sick benefits may be necessary. When a case is reported as being in need of something more than the regular benefits, the Trustees take immediate action, and if there is no surplus, the matter is brought before the Society as a whole and steps taken to give prompt relief. No discrimination whatever is shown.

Two members who showed symptoms of tuberculosis were sent to a sanitarium for a period of four months, during which time their board was paid by the Society and their families given from five to seven dollars each week in addition. Another member had to have the services of a specialist but was unable to pay the necessary fee. The Society paid the specialist, and when he recommended that the member be sent to a hospital, the Society undertook to pay the hospital bill, and paid the man's family his regular benefits. These are only a few out of numerous instances that could be cited.

In the matter of conservation of health, the Society has undertaken to furnish free medical service, and along that line has engaged the services of a reputable physician who is also a surgeon. This physician has contracted, for the weekly sum of ten cents for each member of the Society, to furnish medical advice and treatment to any member at any time. No medicine is furnished, however. If the physician is too busy to respond to an urgent call he must arrange to have someone else take care of the member without any additional expense to the member or the Society.

The physician receives his fee in monthly payments regardless of whether his services are utilized or not. It is the duty of the Society to urge upon its members that in order to receive the maximum benefit in the conservation of their own health they should fully utilize the physician's services whenever necessary. That is to say, they should not wait until the last minute before calling in the physician.

The physician visits the works of the Tabor Manufacturing Company once every day. In case of an injury in the shop the physician is called on the telephone at once, otherwise he arrives about the middle of the day. Any member in need of medical attention reports to the Secretary of the Society, who enters the name on a daily list. This list is given to the physician when he arrives, and he has the men summoned; in this way no one is slighted.

The Company cooperates with the Society by paying the men for the time lost in visiting the physician during working hours. Each man, when going to the physician, turns in his regular working ticket and receives a ticket stamped with the Society's official charge number and the time issued, and upon his return he turns in this ticket and receives his regular working ticket again.

When a member reports himself as sick and unable to come to work, the physician must visit him within two days from the date of the report. In case a member prefers the services of his own family physician, he must, in order to receive benefits, present a properly filled out certificate, which must be countersigned by the Society's physician. Whether his services are utilized or not, the Society's physician must visit all sick members, as his report determines whether or not benefits shall be paid.

Members are entitled to a thorough physical examination whenever they so desire. A record of each examination is kept on a form provided for this purpose. (See Fig. 3). If the physician finds any signs of ill health, he must advise the member as to the proper steps to take to conserve his health.

Where the services of a specialist are necessary, it is the duty of the physician to make all arrangements at the lowest possible cost to the member or the Society.

The members of the Tabor Beneficial Society are encouraged to save their money. The Society will open a savings account with any member no matter how small the sum may be. A fee of ten cents is charged for each account opened. All money is deposited in a trustworthy savings bank in the Society's name.

When an account has reached the sum of twenty-five dollars, it is transferred to the member's own name in this bank, and any future deposits he may make will be made in his own name either by himself or by the treasurer of the Society.

A fee of ten cents is made for each withdrawal.

Members are also encouraged to buy shares in a good Building and Loan Association. The treasurer of the Society receives and makes all payments for all members so as to relieve them of the necessity of making special trips on this account.

The Society also lends money to those in need. Any member may borrow an amount equal to or less than his weekly earnings on hourly rate, same to be paid back in sums of not less than one dollar per week. Interest is charged at the rate of 6% per annum. A power of attorney must be given authorizing the deduction from the borrower's pay of whatever sum may be agreed upon until the loan is paid.

There is a Visiting Committee composed of three members who visit all sick members, make whatever investigations are necessary, and pay over any benefits which may be due. The members of this Committee are reimbursed by the Company for any time spent in this way.

There is a Sanitation Committee composed of three members whose duty it is to make all necessary recommendations with regard to matters of sanitation, and safety appliances, and to see that some action is taken on their recommendations.

There is also an Entertainment Committee, composed of nine members, whose duty it is to take care of all athletic activities, and make all necessary arrangements for the Annual Picnic of the Society. The entire plant is shut down on the third Saturday in July of each year in order to hold the annual picnic. Everyone is invited, an elaborate program is made up, and prizes are generally given for each of the different events on the program. The members almost invariably bring their families with them, and a general good time is usually enjoyed by everyone.

The grounds of the Tabor Manufacturing Company are utilized for all sorts of athletics, particularly baseball and tennis.

Regular meetings of the Society are held in the works of the Company on the first Saturday in April, July, October and January. The fiscal year of the Society ends March 31st.

All committees are appointed by the President of the Society within two weeks after his election.

Attached hereto is a copy of the By-Laws of the Tabor Beneficial Society. (See Exhibit A).

In our estimation the success of the Tabor Beneficial Society can be attributed in great measure to the cooperation of the Tabor Manufacturing Company in paying in to the treasury of the Society an amount equal to that paid in by all the members, as for this reason the Society was enabled to pay the benefits that it does and conduct its affairs on a much larger scale than it could otherwise have done. However, this money is really paid in by the men themselves, even if it is not paid in directly by them; and they feel that the benefits they receive are due to their own efforts, and not something in the nature of charity or welfare work.

And it would therefore seem to the writers that as a means of getting together the employees of any plant managed under the Taylor System in order to foster a proper spirit of mutual and helpful cooperation, a beneficial society, such as we have just described, is about the best possible.

Exhibit A.

BY-LAWS

TABOR BENEFICIAL SOCIETY

PHILADELPHIA

CERTIFICATE OF MEMBERSHIP

No....... PHILADELPHIA, December 4, 1916

This is to Certify, That, John J. Jones,

Clerk,

residing 1745 N. 18th St.,

having made application in due form for membership in the Tabor Beneficial Society, and having promised and agreed to be bound by the By-laws of the same, said application has been approved by the Trustees of said Society, and that from this date he is entitled to all benefits accruing to members of said Society as provided for in said By-Laws.

NATHANIEL JOHNSON, *President*
HERMAN J. HUTKIN, *Secretary*

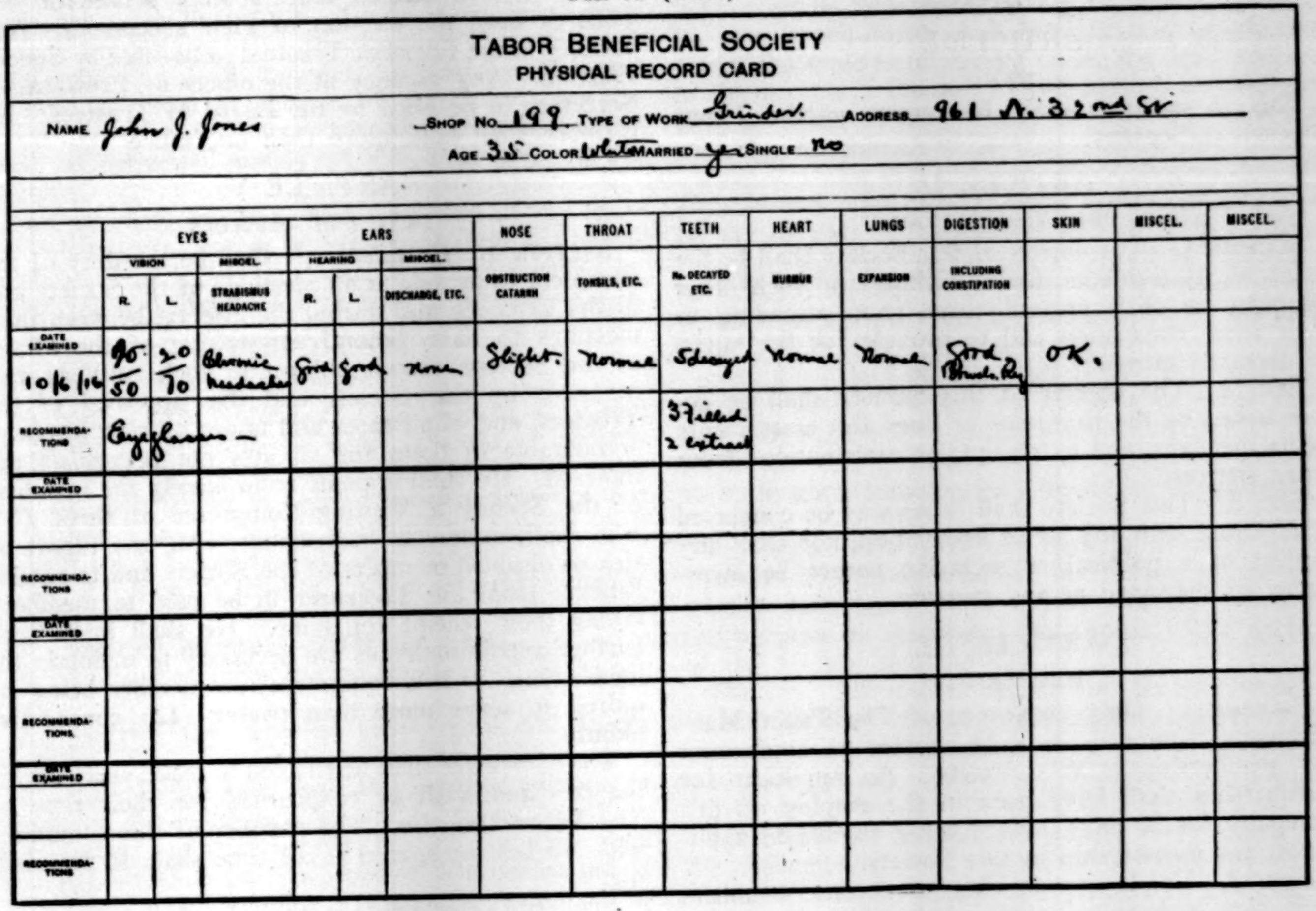


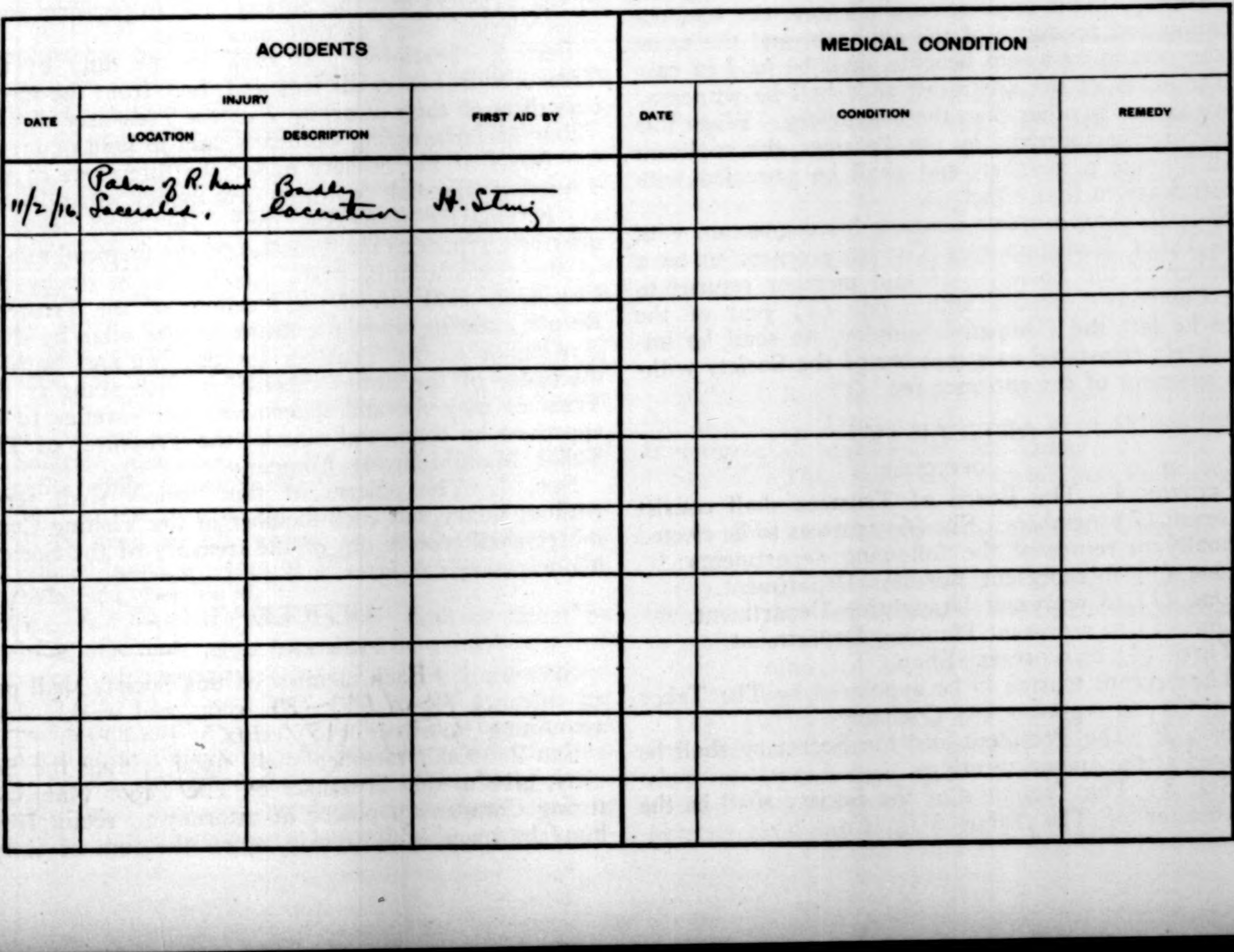
FIG. 3a (front)

TABOR BENEFICIAL SOCIETY
PHYSICAL RECORD CARD

NAME John J. Jones
SHOP NO. 199 TYPE OF WORK Grinder. ADDRESS 961 N. 32nd St
AGE 35 COLOR White MARRIED yes SINGLE no

	EYES			EARS			NOSE	THROAT	TEETH	HEART	LUNGS	DIGESTION	SKIN	MISCEL.	MISCEL.
	VISION		MISCEL.	HEARING		MISCEL.									
	R.	L.	STRABISMUS HEADACHE	R.	L.	DISCHARGE, ETC.	OBSTRUCTION CATARRH	TONSILS, ETC.	No. DECAYED ETC.	MURMUR	EXPANSION	INCLUDING CONSTIPATION			
DATE EXAMINED 10/6/16	90/50	20/70	Chronic Headaches	Good	Good	None	Slight.	Normal	5 decayed	Normal	Normal	Good Bowels Reg.	OK.		
RECOMMENDATIONS	Eyeglasses —								3 Filled 2 extract.						
DATE EXAMINED															
RECOMMENDATIONS															
DATE EXAMINED															
RECOMMENDATIONS.															
DATE EXAMINED															
RECOMMENDATIONS															

FIG. 3b (back)



ACCIDENTS				MEDICAL CONDITION		
DATE	INJURY		FIRST AID BY	DATE	CONDITION	REMEDY
	LOCATION	DESCRIPTION				
11/2/16.	Palm of R. hand Lacerated.	Badly Lacerated	H. Stinz			

BY-LAWS

ARTICLE I.

NAME

This Association shall be known as the TABOR BENEFICAL SOCIETY.

ARTICLE II.

OBJECTS AND PLAN

SECTION 1. The objects of this Society shall be the relief of its members during sickness or such other disability as shall prevent them from attending to their usual occupation and to provide for the burial of deceased members.

SEC. 2. The objects of this Society shall be accomplished by the payments of dues and assessments by its members, and by receipts or contributions from other sources.

SEC. 3. This Society shall in no way be connected or affiliated with any secret association, nor shall any subject of a political or sectarian nature be introduced or discussed at any meeting.

ARTICLE III.

MEMBERSHIP

SECTION 1. Only employees of The Tabor Manufacturing Company shall be eligible to application for membership in this Society. An applicant for membership shall have been in the employ of this Company for 30 days, before being eligible to application for membership in this Society.

SEC. 2. Employees desiring to become members shall sign a form of application, which shall bear upon its face a promise to abide by the By-Laws of the Society. This application shall state the age, occupation and residence of the applicant and the name of the person to whom benefits shall be paid in case of the death of the applicant, and shall be witnessed by two persons other than the beneficiary. When this application is approved by the Trustees, the applicant shall become a member, and shall be provided with a certificate to that effect.

SEC. 3. Any member severing his connection with The Tabor Manufacturing Company ceases to be a member of the Society. If said member returns to the Company's employ within one (1) year of the date he left the Company's employ, he shall be immediately reinstated as a member of the Society without payment of the entrance fee.

ARTICLE IV.

OFFICERS

SECTION 1. The Board of Trustees shall consist of seven (7) members. Six (6) trustees to be elected annually to represent the following departments:

One (1) to represent Business Department.
One (1) to represent Draughting Department.
One (1) to represent Planning Department.
Three (3) to represent Shop.

The seventh trustee to be appointed by The Tabor Mfg. Co., to represent the Company.

SEC. 2. The President and the Secretary shall be elected at the annual meeting.

SEC. 3. The Treasurer of the Society shall be the paymaster of The Tabor Mfg. Co.

SEC. 4. All elected officers shall serve for one year, or until the election of their successors. Any vacancy in the Board of Trustees to be filled by Special Election. Any vacancy in the offices of President or Secretary to be filled by the Board of Trustees. No member shall hold more than one office.

ARTICLE V.

DUTIES OF OFFICERS

SECTION 1. *President.* It shall be the duty of the President to preside at all meetings of the Society and of the Trustees, and during the interval between their meetings to have general supervision of the affairs of the Society, always subject to such rules as may be made by the Society and the approval of the Trustees, and in all cases and under all circumstances accountable to them for all acts not previously authorized. He shall appoint from among the members of the Society a Visiting Committee of three (3), who shall, under his instructions, visit and report on sick or disabled members of the Society and to receive benefits from the Treasurer to be paid to members, taking their receipt for same. He shall make such further appointments as are necessary to maintain the membership of this committee; no member being required to serve more than twelve (12) consecutive months.

The committee shall be enabled to make visits during the day and shall be reimbursed for their time by The Tabor Mfg. Co. The member of this committee who can best be spared at the time shall do the visiting.

SEC. 2. *Secretary.* It shall be the duty of the Secretary to keep a careful record of the meetings of the Trustees and the Society, and to perform such other clerical work as they may direct.

SEC. 3. *Treasurer.* It shall be the duty of the Treasurer to collect all fees and dues from the members through their attorney, *i. e.,* the Treasurer of The Tabor Manufacturing Company, and to hold or invest the funds of the Society under the directions of the Trustees. He shall pay orders for money when drawn, as hereinafter provided for. He shall make a quarterly report to the Trustees of the financial affairs of the Society, and, when directed so to do by the President, shall attend the meetings of the Trustees. Before entering upon the duties of the offce he shall give bonds to the Trustees for the due and faithful discharge of the duties thereof, in such sums as the Trustees may fix and determine, and sureties to be approved by them and also by the Treasurer of The Tabor Manufacturing Company.

SEC. 4. The officers of this Society shall serve without salary, but each member of the Visiting Committee shall receive out of the treasury of the Society his necessary car-fares.

ARTICLE VI.

FEES AND DUES

SECTION 1. Each member of this Society shall pay an entrance fee of fifty (50) cents and weekly dues amounting to fifteen (15) cents.

SEC 2. Each member shall, upon joining the Society, give to the Treasurer of The Tabor Manufacturing Company a power of attorney to retain from his (the member's) weekly wages the sum of sixty-five (65) cents for the first week and fifteen (15) cents per week thereafter; also to retain such sums as may be designated by the Trustees as a pro rata assessment for death benefits. All money deducted or retained from a member of the Society by the Treasurer of The Tabor Manufacturing Company shall be delivered weekly to the Treasurer of the Society.

SEC. 3. Any employee who may have in any manner whatsoever, except by explusion, lost his membership in the Society can again become a member by complying with Article III, Section 2, of the By-Laws.

ARTICLE VII.

BENEFITS

SECTION 1. Any member of this Society when sick or unable to attend to his usual business or occupation, upon notice to the Society, shall be entitled from date of such notice to receive benefits provided for in Article VII, Section 2, provided no benefits shall be paid for a fractional part of a week.

SEC. 2. Benefits shall be divided into three classes, as follows:

1. Salaried members, $5.00 per week.
2. Unmarried members, on hourly rate, $7.00 per week.
3. Married members, on hourly rate, $10.00 per week.

SEC. 3. In no case shall the benefits paid be in excess of the member's weekly earnings, based on hourly rate; nor shall benefits be paid for more than ten (10) weeks in fifty-two consecutive weeks, unless by special action of the Trustees as provided in Article VII, Section 4.

SEC. 4. SPECIAL BENEFITS. Whenever the funds in the hands of the Treasurer exceed $200.00, the surplus shall be set aside to be used as special benefits, to be paid in case of the disability of a member due to accident or protracted illness, or in the case of a death, to be used in payment of a death benefit amounting to $75.00. In case of a death, if the amount over $200.00 is less than $75.00, a pro rata assessment will be made to bring it up to that amount.

The amount of such special benefits, and the eligibility of the member, would be determined by a majority vote of the Board of Trustees, sitting as a body, but in no case would the total amount of benefits paid exceed the member's weekly earnings, or in case the member's earnings were over $15.00 per week, the total amount of benefits paid will be limited to $15.00 per week.

Salaried members will not be entitled to special benefits while drawing salary.

SEC. 5. In case of the death of a member, there shall be paid to his widow or legal representative within 24 hours the sum of $75.00, as provided for in Article VII, Section 4.

SEC. 6. Members may at any time or times by writing, filed under their hands or seals, revoke the designations of beneficiaries named in their applications, during the life of such beneficiaries, and appoint new beneficiaries, and they may reappoint new beneficiaries from time to time, in which event or events the benefits herein declared to be payable to the beneficiaries named upon deceased members' applications shall be payable to the persons designated in the new applications in force upon the death of the respective members. But no revocation of a prior appointment and no new appointment shall be operative or effective unless the same is in writing under the hand and seal of the member, witnessed by two persons and assented to by an officer of the Association and the same lodged with the Association.

SEC. 7. The money which shall become due and payable under the provisions of these By-Laws shall be payable only to the member himself or to his beneficiary in case of death, and shall not be subject to or affected by any attachment or execution process whatsoever against such disabled member or his beneficiary.

SEC. 8. The Trustees shall decide at a stated or special meeting whether an accident or other cause has been sufficient to cause disability or death. The certificate of a physician considered by the Trustees to be in good standing may be sufficient evidence of the fact.

An appeal can be taken from the decision of the Trustees and brought before the Society at the next regular meeting, or at a special meeting, called for the purpose of discussing the appeal. The decision of the Society shall be final.

SEC. 9. All orders drawn for benefits must be signed by the Secretary and countersigned by the President, or in his absence by the President pro tem. In case of sickness or disability, the member must report at once to the Superintendent of the works, who will immediately notify the Secretary of the Society.

SEC. 10. In no case shall a member of this Society receive benefits during sickness that is the result of alcohol or immoral conduct, and any member feigning sickness, or making use of other improper means to obtain benefits, shall upon conviction thereof by the Board of Trustees be expelled from membership in the Society, and shall not again be eligible to membership, a committee of three, one to be appointed by the President, one by the accused, and the above to decide on the third, to try the accused member, said committee not to be composed of any Trustees, the accuser to present a copy of the charges in writing, and the accused to be presented with a copy of the same.

ARTICLE VIII.

LOANS

SECTION 1. The President and two members of the Board of Trustees shall act as a committee to investigate all applications for loans.

SEC. 2. The following regulations shall govern loans:

(*a*) No loan to exceed the applicant's weekly rate of wages.

(*b*) Application for loans to be made to the President and referred by him to the committee appointed to make investigations.

(*c*) Interest to be charged at the rate of 6 per cent. per annum.

(*d*) Payment on loan to begin within two weeks from date of loan. The amount collected each week shall not be less than $1.00.

(*e*) The following note must be signed by all persons obtaining loans from the Society:

DATE

I promise to pay to the Tabor Beneficial Society ....Dollars, with interest at 6 per cent., for value received, and I hereby give the Treasurer of the Tabor Beneficial Society Power of Attorney to collect from my weekly wages the sum of $........weekly, until the amount stated in this note, plus the interest, is paid. Should I sever my connections with The Tabor Manufacturing Co., I authorize the Treasurer of the Society to collect the amount necessary from my wages to pay the amount due in full.

Signed ....

Witness

ARTICLE IX.

MEETINGS

SECTION 1. Stated meetings of the Society shall be held quarterly. The first Saturdays in April, July, October and January. Stated meetings of the Trustees shall be held quarterly, the Tuesday before the meeting of the Society. The trustees shall hold a special meeting the first Tuesday after the annual election for the purpose of organizing. Special meetings of the Society shall be held on written application to the President, signed by ten (10) members. Special meetings of the Trustees shall be held on call of the President or upon written application made by three (3) Trustees to the Secretary. Notification of every meeting shall be transmitted to the members by the Secretary at least one (1) day before such meeting is held.

SEC. 2. At a meeting of the Board of Trustees five (5) members shall constitute a quorum.

ARTICLE X.

REPORTS

SECTION 1. It shall be the duty of the Trustees to make a full detailed report of the affairs of the Society, and to submit a copy of the same quarterly to the members.

SEC. 2. The President shall, at one month previous to the expiration of his term of office, appoint an auditing committee to audit the accounts of the Secretary and Treasurer.

ARTICLE XI.

AMENDMENTS

These By-Laws may be altered or amended by a two-thirds vote of the members present; *provided,* the alterations or amendments shall have been proposed and entered on the minutes of the Society at least 30 days previous to action thereon. Notice of alterations or amendments shall in all cases be communicated to the members of the Society by the Secretary before action thereon is taken.

All points of order not fully covered by these By-Laws shall be governed by Roberts' *Rules of Order.*

ORDER OF BUSINESS

1. Reading of the minutes of the previous meeting.
2. Reports of Committees.
3. Reports of Officers.
4. Unfinished Business.
5. Election of Officers.
6. New Business.
7. Adjournment.

AMENDMENTS

SEC. 3½. Members shall receive *free* medical attention from the Society's physician at all times.

DISCUSSION

MR. ALFRED B. RICH:[1] The paper submitted by Mr. Hutkin and Mr. Johnson is of timely interest.

A report has just been issued of an investigation made by the Committee on Mutual Aid Associations of the Welfare Manager's Group of the Executives Club, Detroit Board of Commerce, and 32% of the eighty-three associations covered by the report were formed in the last six years.

This report states that up to the present time, so few definite statistics have been available that each new society is evolved more from the personal ideas of those proposing the scheme than from the result of accumulated data of other similar organizations. Very often one is made by merely copying the by-laws of another one in apparently successful operation.

A few years ago Mr. W. L. Chandler of the Dodge Manufacturing Company sent out a questionnaire on this subject and after getting reports from a number of concerns, formed an organization embodying those principles that most appealed to his associates.

The Men's Mutual Relief Association of the Dennison Manufacturing Company has had the benefit of Mr. Chandler's findings and they have made some alterations in their constitution and by-laws within the last few years, although their articles are, in principle, practically the same as they were in 1899 when the association was organized.

From time to time I would like to suggest certain features that differ between the articles of the Dennison Association and that of the Tabor Beneficial Society that seem to my mind to be worthy of consideration.

The statement that an organization of this nature should be managed exclusively by the employees seems to me to be very sound. I have the feeling, however, after reading the paper, that this result might be more thoroughly attained by the Tabor Society if the trustee representing the Company should be elected by the members rather than appointed by the Tabor Manufacturing Company. Such an association will make fewer mistakes and benefit generally from the counsel of one of the management. This representative of the management, however, should be elected by the association.

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[1] Dennison Manufacturing Co., South Framingham, Mass.

It is the firm opinion of the members of our association that any contribution by the company is in the nature of charity or welfare work and that they do not care for the concern to be a contributor, except the negative one of allowing certain of the men to give a small part of their time to collecting funds or attending supervisors' meetings. Fifty per cent of the associations mentioned in the Detroit report are subsidized by their companies in some way, but only 13% with money of from 10 per cent of the amount as collected. The rest only in a minor way, such as administration expense, service of nurse, etc.

With the Tabor Company the employees are nearly all men, only four out of one hundred and seventy of the employees being women, and consequently, the women are not a factor in the success or otherwise of the society.

With a concern employing a large number of women, it would be unwise, in my opinion, to include them on exactly the same footing as men. The experience of the Women's Mutual Relief Association of the Dennison plant has been that women in industry are more frequent beneficiaries of sick insurance than are men. They are more indifferent to the objects of such insurance, and it is consequently much harder to keep up the membership in a voluntary association. It seems to us that our Women's Association (which is entirely separate from the men's) would not be a success except for the social affairs that they get up from time to time—dances, parties, etc. The receipts from the sale of tickets are used for the necessary expenses of such occasions, and are not added to the insurance fund, but only members and their guests are invited, and this privilege has resulted in a fairly large membership.

The societies covered by the Detroit report have an average membership of over 50 per cent of the total number employed by the concerns. The Tabor Society is *not* compulsory which I believe to be a wise provision, and *their* membership of 162 members of a total of 170 employees indicates they have the right kind of man at the head of it. The dues of this society are the same for all. The sick benefits per week are $5.00 for salaried members, $7.00 for unmarried members and $10.00 for married members.

This does not seem to me to be an equitable distribution of the funds as I can see no reason why a salaried member or an unmarried member can be considered any more of a risk than a married member, either from the point of view of his being sick or disabled more frequently than the married member or being more liable to attempt to deceive the society in this respect.

There have been provisions in our articles in the past that only employees with a family or others dependent on him might become eligible for membership. This provision was abolished several years ago and with no unsatisfactory results.

If the benefits should be higher for married members, it would also seem wise to pay higher benefits to members with others dependent upon them, even though unmarried.

This society's plan of having the company deduct from the applicant's weekly earnings, the weekly dues of the society, is undoubtedly more efficient in a certain sense than for the members to pay their own dues to their own collectors. On the other hand, we feel a certain sentiment about having our pay-envelopes contain our full wages and prefer to pay our bills ourselves. This plan we believe to be right in principle. I remember that we had one man join our Association and six weeks after he joined he was inflicted with infantile paralysis and has never walked since. For three consecutive years we paid him the full ten weeks' allowance. After that they had to amend the by-laws again.

Sick benefits are paid by the Tabor Society for not over ten weeks in any one year which is a very common and wise provision, but in our experience we have also found it better to begin the payment of benefits the *second* week of illness or disability. When we first started in we paid for the first week until we found that we were going into the hole, and we had to bring in at the next meeting a change in the by-laws providing that no payment should be made except for the second week, and thereafter, for any disability.

In the compulsory Health Insurance of Germany, Great Britain, Austria and Norway, and in the bills for compulsory health insurance presented to the Massachusetts, New York and New Jersey Legislatures—three days is given as the waiting period. We also provide that a new member must belong to the association at least sixty days before he can derive any benefits.

One-third of the associations answering to the Detroit questionnaire have a provision that a new employee wait from three weeks to six months before being eligible to membership, and 82 per cent do not pay benefits for from one week to six months after employees become members of the association. Some provision of this nature seems to be wholesome.

I see no mention in this paper of any rule requiring physical examination before a member is accepted. This has developed to be rather an important matter in our association and we would not give up this rule.

The Tabor Society's provision of free medical attendance appeals to me as a most excellent plan. Of course, certain men will always prefer their own physician and if they prefer to pay for his services instead of accepting the free services of the association they can have that privilege. However, when a majority of the members will approve the plan of providing free medical attention, it will undoubtedly be of great general benefit.

The Tabor Society's plan of using the surplus over two hundred dollars [$200] for special cases requiring more than the regular benefits is good in principle, and meets a definite need that will exist in all such associations. In my opinion, the article providing for special benefits should be so worded that the surplus would be the sum in excess of a variable amount depending on the membership.

In a society liable to increase largely in membership, it would be best to provide for regular benefits first, by setting aside so many dollars per member and using only that balance for this purpose. In our case, we have set aside 5 per cent of the regular dues since the association was formed and this fund has so far been sufficient for this purpose.

The further activities of the society, encouraging members to save money, to subscribe in building and loan associations and lendng of money to its members, are not in the nature of a mutual insurance association's activities in my opinion. All these functions meet a need and should be provided for in some way, but it does not seem to me to be advisable to combine such widely differing forms of service in the one association as a general rule. While in the Tabor Society, embracing as it does almost the entire personnel, such a plan offers all these services to nearly all employees, in many concerns, a considerable number of employees would be without the benefit of these services, unless they become members of the beneficial society.

That some of the members of this society are appointed to make recommendations with regard to matters of sanitation and safety appliances, seems to be a wise provision and is worthy of general adoption.

In our own case, we have all accidents causing disability reported to the supervisors of the Relief Association, and they in turn visit the location of the accident, are informed as to its nature, and see if they can suggest any method of safe-guarding against repetition.

Miss Frances Mitchell:[1] I was asked about five minutes before this paper was read, to recall as much as I could of the formation of the society at Madison, Maine, and I will try to tell you as much as I can about it.

It was in 1891 I think that Mr. Taylor formed that society and the rules were very similar to those of the Tabor Manufacturing Company of which you have heard this afternoon. There was a 50-cent initiation fee. They began with 5 cents per week for dues, but found that they did not have sufficient funds to pay the benefits, and the weekly dues were increased to 10 cents a week. I think the benefits were about $3.00 a week, and doctors' expenses until the person injured or disabled had received $60.00.

In case of a fatal accident each member was assessed 50 cents to pay funeral expenses and other expenses incurred at just that time.

As I recall it, the officers were appointed by the superintendent of the mill, and then these officers elected their own president, secretary and treasurer. The dues were collected by the paymaster of the mill and paid to the treasurer of the society. They never attempted as much as the Tabor Company have, but it has prospered because when I left there three years ago they had money in the bank, and if a man had paid dues for 10 years, he was refunded $50.00.

As to doctors' bills, there were only about four doctors in that town, which is a small town, and the doctors were to receive by arrangement a certain percentage of the dues. Each doctor kept track of his own calls and each person chose his own doctor. At the end of the year they apportioned the amount of the dues received according to the number of calls they had made. I think that is all I can recall.

Mr. Robert Thurston Kent:[1] I would like to ask Mr. Hutkin in regard to the payment of physicians' fees? I think he said they were paid 10 cents a member. Is that right?

Mr. Hutkin: Yes.

Mr. Kent: Is that in addition to the dues?

Mr. Hutkin: No, from the dues.

Mr. Kent: Then the net to the treasury is 5 cents?

Mr. Hutkin: No, on account of the Company paying in, it is practically 20 cents.

Mr. H. W. Shelton:[2] I should like to ask Mr. Rich or anyone here whether the risk or liability incurred by these associations has ever been worked out statistically. It seems to me that this problem of a beneficial society has two sides: one is the obvious psychological and social benefit and the expected financial benefit to the employee; the other the ability of the association to fulfill the financial liabilities incurred, without which present good may result in ultimate harm. If an association is not sound financially it is bound, sooner or later, to bring disappointment, suffering, or even disaster to those who find their trust in it misplaced.

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[1] Secretary, Frederick W. Taylor Cooperators, Chestnut Hill, Philadelphia, Pa.

[1] Engineer, Montclair, N. J.

[2] Amos Tuck School of Administration and Finance, Dartmouth College, Hanover, N. H.

It is well known that practically every mutual benefit association, organized primarily to provide death benefits, ultimately goes to the wall. This is bound to be the case unless it is established on a basis corresponding to that of the legal reserve life insurance companies, in which the reserves put aside to meet the liabilities, as figured on the laws of average mortality, are sufficient to meet the liabilities as they grow. Why is the same principle not applicable to all mutual benefit associations in so far as they undertake insurance, whether life, accident, or health? There seems to me a grave danger that the dues in these associations are being guessed at with no accurate knowledge of the liability which these dues are supposed to meet. Such haphazard methods may some day spell disaster. I hope that Mr. Rich, from the statistics he has gathered, may be able to show what has been done to avoid this danger.

Mr. A. B. Rich: We have not been in touch with any definite statistics of that nature. You can see that the turn-over in a factory, the number of members that join and leave before they acquire any benefits, makes a big difference in the amount of funds that an association of this kind will acquire. A factory with a very small turn-over would necessarily have to charge a good deal higher dues than one with a large turn-over.

Another thing, these mutual organizations that have, —some of them recently— gone up, have failed not because the dues in themselves were too small, but because these organizations have not been able to maintain their membership. As people died off, they did not get in new members to secure to themselves a reserve fund. There is quite a large proportion of people who take up insurance for a certain length of time and then drop it. They simply pay in their dues, but never become beneficiaries. Those who stay with the association eventually profit by it.

Mr. H. W. Shelton: Mr. Rich has touched the fundamental point in regard to these beneficial associations. That is, so far as life insurance goes, the mutual benefit associations depend for their existence on the getting in of new young blood to take the place of those who die off. That is a burden which increases as time goes on, because as the benefits are paid to the increasing number who die, a larger and larger group of young members must be secured to meet the deficiency. This is an obviously false basis. The time inevitably comes when they cannot get enough current income from young blood to pay the current losses from death. As Mr. Rich says, they can't "maintain their membership." Then the insurance life boat goes to the bottom with all on board. The only safe practice is that of charging a premium large enough to cover, by a properly accumulating reserve (corresponding to a business sinking fund), the liability as it is incurred. Then neither growth nor decline in membership will affect the safety of the organization, or its ability to meet its obligations.

It seems to me that any local mutual benefit associations not so organized are economically and financially unsound. If that is true, and it is contended that individually they are too small to make their insurance safe on the law of averages, then a possible solution, to my mind, is the association of a sufficient number of these separate groups, with the pooling of their resources and liabilities, to make the law of averages apply.

Mr. William J. Stanton:[1] Mr. Chairman, I am here today without preparation or papers. I received a telephone communication a short time ago asking if I could come and say something about the Massachusetts Credit Union. So I came without any knowledge of the nature of the assemblage or as to what particular points in the Credit Union system I was expected to cover. Consequently, I presume I can choose my own subject matter.

I want to say, first, that the Massachusetts Credit Union of which I am the general manager is a voluntary, philanthropic body, formed by 80 or 90 men who for many years have been giving very largely of their time, and money, and hard work to all sorts of charitable and philanthropic enterprises. They studied the credit union system and made up their minds that here was something better than anything in the nature of charity, better than any philanthropic work that they had been doing, and so they decided to give a part of their time, to give a part of their money, to apply a part of their efforts hereafter to spreading the credit union system. And yet the Credit Union is not a philanthropic undertaking except in its results. It is a cold, hard-headed cooperative business proposition. It is what is known as the "Peoples Banks" in Canada, and Italy, and as the Rafeissen Banks and the Schultze-Delitzsch are Credit Associations in Germany, they are not charities, but they are performing a work far greater than any charity by doing away for millions of people all over the world with the need of charity.

As formed in Massachusetts, the "spheres of operation" of a credit union are very diversified; they can be formed and successfully operated in small cities, towns, rural communities, churches, settlement houses, lodges, in cohesive colonies of some foreign people, but what would interest you most is the "sphere of operation" among the employees of one particular factory, department store or similar business organization. It has been tried out in Massachusetts in such spheres of operation, and it has succeeded admirably.

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[1] General Manager, Massachusetts Maintenance Society, Boston, Mass.

There is one formed among the employees of the Shepard Norwell Company, likewise the employees of Gilchrist Company, of Shuman's, of Leopold Morse, of the Boston & Maine Railroad, of Whiting & Son, milk contractors, and these have been running quite a time. One of shorter life is among the employees of Bird & Son, large paper manufacturers in East Walpole. Those are all doing a splendid work for the people, and on a strictly business basis. An industry with a fairly permanent force of from fifty employees upward is an ideal field.

A credit union is a banking institution. Each one is a bank in every sense of the word. A charter has to be obtained from the State Board of Bank Incorporation. A body composed of the State Treasurer and Receiver-General, the Commissioner of Corporations, and the Bank Commissioner, must be convinced that the field of operation is a promising one; that those who are organizing it are men who can be trusted to carry on the work in a proper way; that it looks as if there were people who would invest their money in such an organization, either to help on the cause or as a safe and profitable investment, and other people who could providently take advantage of the borrowing facilities offered.

There are two methods of investing, and only one of borrowing, and its value in furnishing investment facilities as compared with giving opportunities for borrowing is two to one, and that represents really the value of the association.

It is not primarily a lending association; it is primarily a thrift association. Some of the firms represented in your society are actually in this work now. The Dennison Manufacturing Company at Framingham started its credit union today. Another has been formed at the Waltham Watch Company's plant of which union I hold the incorporation papers in my office today.

A share is, as a rule, $5.00. That can be sold to members in installments of say 25 cents a week; sometimes more, sometimes less. Sometimes installments are in monthly instead of weekly amounts.

The share does not go on the dividend list until completely paid. The member can buy one share, or such number of shares as may be decided by the association itself. These shares draw dividends according to the earnings of the corporation, once a year, following the 31st of October.

That is the procedure with respect to the more permanent form of investment. But in addition to that each credit union is practically a savings bank, open only to its own members. You must be a stockholder in order to deposit money. This money so deposited is a separate fund, only so far as the accounting is concerned; it draws interest, once in three months, according to earnings, as decided by the board of directors of the corporation. This interest is always less than on the dividends on shares, because the depositor's money comes back to him sooner, and it is designed to attract the sums of money that a man is spending on cigars in excessive quantities, or any other wasteful habits. In one credit union of which I was the treasurer a man made a rule of coming in each week and putting in the deposit department every cent of his pay that he had left over from the previous week. These are the sources of income.

The outgo is by two methods. First, by loans to members. This may not look like a thrift organization, but it is. The Credit Union will not loan except for a thrifty purpose. That is the first duty of the Loaning Committee. The second duty of this same Committee is to decide that the loan is a safe one, and there is where the old line bankers would say it was at a great disadvantage compared with the other banking systems, but where, as has been proved it actually has a great advantage over them. It has the loosest system of credits of any banking system the world has ever known, but the record of two-thirds of a century has shown the lowest percentage of losses.

The Credit Committee has first to be satisfied that the would-be borrower needs the money, then second that the money will come back to the Union. It can accept anything in the way of security that it thinks safe; it can demand anything in the way of security that it considers necessary. This money, in Massachusetts, can be loaned at a rate not to exceed 12 per cent. The Bank Commissioner and the Supervisor of Loan Agencies have decided that as these are thrift societies, and have a limited membership, and as all those who are participants in the creation of the earnings, are participants in the division of the same; loans may be made on the basis of 12 per centum *deducted*.

Very few credit unions, however, charge that amount. I should say that the average rate where interest is deducted is in the vicinity of 8 per cent. Some unions, however, charge on balances, which I believe to be far the better way, and this practice is growing.

The Board of Directors can dispose of all money that is not loaned out to members in the same way that the Board of Directors or Investment Committee of a savings bank can dispose of the money of the savings bank depositors. The same securities are open to credit unions as to savings banks as an investment for funds not needed by their own members.

There are three distinct bodies charged with the control of the affairs of a Credit Union. First is the Board of Directors consisting of from 5 to 15 members, elected by the members of the Union at their annual meeting, usually for a term of three years, one-third of the members of that Board dropping out each year. The Board of Directors elects the president, vice-president, clerk and treasurer from its own membership, and performs, I should say, the usual duties of such a body. All business not transacted by the members at the annual meeting is left to the Board of Directors except such duties as are specifically in the hands of the Credit Committee and the Supervisory Committee.

The Credit Committee is the second governing body and is usually composed of three to five members, elected for three years, an equal number, as far as possible, dropping out each year. In speaking of loans I have already outlined its duties which need not be repeated.

The third body, the Supervisory Committee is composed of three members, all elected for one year, and represents the members when the members are not in session. It overlooks the work of the Credit Committee, the Supervisory Committee, and the other officials. It must see to the auditing of the accounts of the treasurer, see that the notes are made out correctly, that the business is being conducted in first-class shape, and that all cash and securities are on hand and properly cared for. The powers of the members of this committee are very extensive. They cannot say to the Credit Committee—Do this or do that; but they can say—You ought to do this or you ought to do that. And if the Credit Committee or the Board of Directors keep on doing this thing or not doing that thing which they have mentioned, they can say, "You gentlemen must sit down and we will talk the matter over with the members." They can suspend any or all of the Board of Directors and any or all members of the Credit Committee, but must call meetings of the members of the Association to decide who is right and who is wrong. This Committee is the safety of the organization.

We have in this way established a method of teaching men systematic saving of their money and we have provided the agency for doing this at their elbows. A Credit Union member does not have to go to a savings bank and stand in line and see a man in front of him depositing $100, and a woman behind him putting in $50, when he has only a $5 bill—it makes him feel insignificant and of very small account. But the treasurer of this credit union is a man he knows and he is not ashamed to deposit a quarter or a dime. The encouragement to saving is constant.

Then when he needs money for a proper purpose, he can get it without loss of self-respect and without being robbed. For instance, in the middle of the summer the price of coal is at its lowest and he can purchase it at an amazingly lower price compared with what he has to pay in small lots bought in the winter time. He can borrow this money from his Credit Union and he will find that no matter how much interest they charge, he will save quite a percentage of his money by that transaction. Further, the coal is in his house and so far as he is concerned he doesn't care if in the winter time it does go to $12 or $20 a ton.

There are times of sickness when an operation or a visit to a hospital is necessary,—or a trained nurse, and you all know how costly that is. These experiences all come to different people at different times of life and the Credit Union, where they are known and their reputation is good, is the place where they can go and get the needed money. And some of this money which they are paying out as interest on their borrowings comes back after the 31st of October in the shape of dividends on their stock.

And now comes a point which probably you, as efficiency men, can understand far more readily than people from the ordinary walks of life who have not studied economies. The question is frequently asked: How can an organization which is loaning its money out and charging 8 or 10 per cent pay a dividend of 12 or 16 per cent? And yet they have done it. It is simply this: When the money is loaned in a Credit Union it commences to come back the next week. The loans are repayable in small installments. The money is loaned out one week, and it commences to come back next week and this payment is loaned again to another man. One Credit Union organized three years ago commenced to deduct 12 per cent from its loans. That amounted to 28.8 per cent on the money that the man had the use of, and for about six months they loaned all their money at that rate. They found they were coining money. They dropped it to 10 per cent. At the close of the fiscal year they declared a dividend of 12 to 14 per cent and they cut down their rate to 8 per cent. At the last meeting, which I attended, they declared 14.5 per cent dividend and again cut down the interest rate to 6 per cent deducted, and they expected to reduce it again next year.

There is this vast difference between one of these societies and outside loan companies: The loan company is interested only in the profits. The Credit Union members are banded together and they are interested not only in the profits but also in the benefits which they can give to their fellow members. The desire of a Credit Union is always to furnish its funds to members who are compelled to borrow, at the lowest rate at which they can be loaned and give a decent dividend on the money invested. They charge higher than the savings banks or cooperative banks; but they loan on securities which those organizations could not and would not even consider. But there is this advantage even in their heavier interest. If they are paying a higher rate, they are getting back a little dividend check after the 31st day of every October, and they cannot help thinking how much larger their check will be when they are not borrowing but when they are saving.

I could talk a whole day about this system and could tell you anecdotes of many individual transactions which would certainly interest you. But I know my time is limited, as is yours, and there are others to follow me. If there are questions which you desire to ask I shall be glad to answer them as best I may.

MR. EUGENE L. FOLSOM:[1] Mr. Stanton has told you that the Waltham Watch Company is just procuring a charter for the establishment of a credit union. I have been connected with the Waltham Watch Company a long time and there are 24 or 25 departments there. And the various employees in the departments there had worked out all sorts of things in different groups, such as vacation savings clubs and organizations of that kind which are always to be found in large industrial establishments. Almost every department has one or more at Waltham. The idea was that a girl would give, for instance, a dollar a month into the hands of someone that they would select. I can tell you of a personal experience, and if I use the word "I," do not understand that I have anything particularly to do with it at all.

In the plate department of which I was foreman for some 17 years there were a dozen or more of those in the room, and every pay day there would be a dozen or more of the collectors skipping around in the room to collect the 25 cents or the dollar or whatever it was, to keep for the employee who wanted it for vacation money in June. We usually have for vacation the first two or three weeks in July.

That was really a great annoyance to the foreman, and I set on foot an inquiry to see if that could not be consolidated into one, and appoint some one person to collect, and I said if they felt reluctant about putting that money in the hands of any one of their friends, the foreman was not bashful in saying that he would take care of it for them.

It was brought about that way a good many years ago, and they would collect so that at vacation time—by the way, they appointed one person to act as collector there, and one secretary there and turned over to the foreman of that room anywhere from $1200 to $2500. That is now going on in that same department, and although I am not foreman of that department they liked their treasurer so well that I have now in my possession $1,500 which will grow probably to $3,000, that we will put out in June.

That is only one of 25 or 30 of them. Talking with our treasurer about this, to get an idea of this credit union and asking whether he thought a credit union would be a benefit to the whole body of employees, he communicated with Mr. Stanton who came out that night and talked that evening to the Foreman's Association. In 10 or 15 minutes they appointed a committee to take action immediately, and on Friday at noon we organized a credit union. That has all happened in the last few weeks.

I think that the credit union of the Waltham Watch Company will be a great benefit to the employees in the way of thrift. The management of the factory had always been willing to loan its funds to anyone in distress, but you know how backward anyone is in going to their employer and telling them their troubles and asking for a loan of $50 or $100. It is only in the extreme cases, or those who do not care so much, that they will go. This association will have a chance to help the greater number and the management of the company will still continue if anyone asks them.

We think this amount of money will help along in encouraging thrift, as these other smaller ones have, and will not be a burden to any of the departments. We can do it through one head and a paid secretary probably. This money which is paid over to the foreman of the rooms and particularly this one, a lot of the employees would start in who had never saved a cent in their lives before, and the habit of saving grew on them until the night when Mr. Stanton was out there, the treasurer of this department which I spoke of paid to one girl $100, so that she could start a savings bank account. Two or three of them have started to buy homes from those small beginnings, and others have made their start there, who have bought automobiles and had a nice time with their money, and always had their money for vacations.

I think I ought to add that we have a relief association in our factory, too, who carry on their work at 25 cents a month. It is more of a free will affair and easily conducted. And if we find we have money ahead we don't collect every month. Sometimes we don't collect more than eight times a year, but it is conducted very similarly to these plans which have been described here. They pay a benefit of $5.00.

MR. STANTON: Two gentlemen have already asked me questions which remind me that I omitted one important item in my statement. That is, that the office of the Massachusetts Credit Union is at 78 Devonshire Street, Boston, and that I am ready at any time to go anywhere, without one cent of cost, to explain the system, either to individuals who think of organizing credit unions, or to committees who have the matter under consideration.

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[1] Waltham Watch Co., Waltham, Mass.

MR. CECIL D. GREGG:[1] I would like to ask Mr. Stanton the attitude of the trust companies and savings banks toward the credit union plan?

MR. STANTON: So far as we have felt it, it has been entirely friendly. Very often credit unions occupy a position largely as feeders to savings banks, collecting funds and depositing larger sums in their institutions as they accumulate from time to time. As to trust companies we take care of a class of clients just as honest, and who give security oftentimes as good as demanded by the trust companies but whose dealings are in smaller amounts. The trust companies will not look at them because they are too small financially to be desirable patrons. The credit union handles those matters and acts as a feeder or a side partner of the trust companies. As a matter of fact, some of the gentlemen connected with trust companies and savings and co-operative banks acted on the committee to assist in drafting the credit union law in Massachusetts.

MR. R. A. WENTWORTH:[2] One other phase of the beneficial society work which I wish to emphasize, is the wonderful assistance that the weekly benefit is to an employee whose income has been cut off. Mr. Boyd Fisher of the Detroit Executive Club says that nearly all of the employees hired by the employers of Detroit are broke when they are hired. That means, I suppose, that nearly all employees are broke all the time. And that fact has been brought further to my notice in the reports of men connected with beneficial associations, reports of committees who have visited sick or injured employees, who have noticed how grateful they are for that interest. If the occasion of those visits is a payment from the association, there is a great welcome for the visitor.

One young man, president of a beneficial association, told me that he personally visited every case for which the association paid out money, and he visited other cases where they did not pay out money, —that is, during the first week. In that association they had a different visiting committee of three appointed each month, the idea being to popularize among the members of the society the work of the society. The president found, because he had a big heart, sufficient reward for the visits that he paid in the confidence that he gained among his fellow employees. In most of the cases the money received from the beneficial society was the total support of the family during the period of disability, and it meant the difference between practical starvation and having something to get along on. That man made a host of warm friends in that way and the members of the visiting committees had the same experience. The men appreciated their coming as an interest on the part of someone connected with the concern, and they appreciated the money as it kept them from absolute want.

MR. LOUIS G. ROWE:[3] I have not followed that as closely as I might have, in regard to the work which the service secretary does in beneficial lines. I might mention that our service secretary is a young lady. And I don't think she does anything as regards benefit. At least I have heard of nothing, but she does of course take an interest in visiting all of the sick employees, and in following their welfare. In this way she becomes acquainted with the different employees and of course becomes a great friend to them.

I have personally thought if some of the employees themselves were on a visiting committee, that the employees would appreciate it more than they do by having a service secretary visit them. It may be the feeling of the men,—having a woman service secretary visit them,—I don't know that it is the feeling but I think there would be a heartier cooperation amongst the employees if a visit from some of their members such as the foreman with whom they are working every day, could be arranged.

I think the Eastern Manufacturing Company must, sooner or later, do more of this beneficial work. We have a system of suggestions, at the mill, and I personally go over every suggestion that is turned in. There have been numerous suggestions to start a savings society or a benefit society. This question has been turned over to our treasurer who is to decide on which line the society will perform it. But hearing the talk on this credit union, it certainly has appealed to me. I was going to ask the question if other states besides Massachusetts could secure the services of men who have familiarized themselves with the working of this plan in Massachusetts.

MR. STANTON: From where do you come?

MR. ROWE: I come from Maine.

MR. STANTON: I wish to state that I have recently had a communication from a gentleman in Maine and we prepared in our office the bill which he is going to have presented in the Maine Legislature to establish the credit-union system in Maine. As it now stands the laws of Maine will not allow the establishment of credit unions. This bill is to be presented and I intend to go down to the Legislature when the time comes, to state the experience of Massachusetts in carrying on the work.

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[1] President, Evens and Howard Fire Brick Co., St. Louis, Mo.

[2] Superintendent, Saco-Lowell Shops, Lowell, Mass.

[3] Eastern Manufacturing Co., Bangor, Maine.

MR. ROWE: I think they will appreciate your assistance.

MR. P. O. LARSON:[1] I do not know as there is much I can add to what has already been said. We have a Mutual Benefit Society which has been established for 20 years, in which the members pay a matter of 25 cents per month. It is a Benefit Society and is simply for sick benefit purposes, although in case of death $75 is paid by the Company, and $75 by the Society to the beneficiaries.

We have also a savings system, handled by the Pay Department in which the different employees may save a specified amount weekly which is deducted from their wages or salaries, and is returned to them with interest when it has accumulated to the amount of $50.

Outside of that I do not think that anything has been developed that is quite as elaborate as some of the schemes or systems which I have heard discussed here this evening.

MR. WALTER D. FULLER:[2] We have four different societies which have to do with the subject.

First, there is a Savings Fund in which employees can buy shares. Each share costs 25 cents a week and has a paid-up value at the end of the year of $13.00 plus interest. The society year begins with the first of September and closes the last of August. Employees can purchase any number of shares up to twenty. During the year employees may borrow against their savings up to the full amount, but they must pay 6 per cent interest on the money they secure. If a depositor fails to pay his dues promptly he is fined one cent a share a week for each such delay. In addition to this source of income, the Company donates a certain amount of money at the close of each year. The net result is that the money paid to depositors represents the gross deposit plus about 8 per cent.

The society is of benefit to employees more because of its compulsory saving feature than because of the large return, although the interest is welcome. We have some 900 members at present. In addition to the regular Savings Fund, we operate a Permanent Fund for saving in which any employee can deposit money, and which we re-deposit for them in certain forms of security which net us 5 per cent a year. This interest is paid yearly. It does not compound, however, if the depositor fails to withdraw it. Neither of these Savings Funds are company matters, they are merely employees' societies. The company looks upon them with favor and assists them to some degree but is in no way responsible.

The second activity of this nature is a Beneficial Society. There are two classes of membership, one which costs an employee 5 cents a week and pays a sum of $2.50 weekly for a period of thirteen weeks, the other class costs 10 cents a week and pays $5.00 a week for a period of thirteen weeks for disability. The activities of this society are in process of revision at present due to changes necessitated by the Pennsylvania Compensation Law. The Beneficial Society at present has about 800 members.

Our third activity consists of a Vacation Club. This is handled through our Welfare Department. The treasurer of the club issues cards which are printed with numbers around the edge, running from 1 to 52. Each week employees can pay any sum from 1 cent to 52 cents, whereupon the corresponding figure on the edge of the card is punched out. This club starts operations the first of July and is through the last of the following June. Each card then represents $26.00 and may be cashed at the employee's option. The club pays no interest to savers.

The fourth activity consists of the Country Club Building and Property. This is located about ten miles out of the city. We have a very nice club house and some 154 acres of ground. Membership in the Country club is 5 cents per week for women and 10 cents per week for men. This is a pretty active organization. There are about 2000 members. We have the usual country club interests of dancing, amateur theatricals tennis, swimming pools, baseball diamond, trap shooting, etc. The company owns the property and leases it to the club for a small amount of money. The company takes a deep interest in the success of the organization, but the members run it themselves. The company has two representatives on the Board of Trustees, but otherwise has no representation in the management.

In addition to the societies which have just been spoken of, the company, through its Welfare Department, maintains a home visiting organization. These visitors call upon all employees who are absent more than three days. They see them, find out why they are away, and if they are ill they provide any relief which seems desirable.

The company has recently started another activity known as The Franklin Cooperative Stores. It is operated under the direction of the Employment manager and the manager of the Restaurant Department. Here all sorts of dry groceries are sold to employees at cost. This store has been greatly appreciated by our people and has saved them a good deal of money. The company provides the space and an attendant, it also provides the capital to carry on the business. Employees file their orders each morning in special boxes. The orders are collected and the goods are packed. Employees call at the store room and pay for the goods when they leave at night. Of course, we do not attempt to make any deliveries, nor do we receive telephone orders or orders over the counter. The company pays the expense of printing the food lists, order forms, etc.

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[1] Forbes Lithograph Manufacturing Co., Chelsea, Mass.

[2] Secretary, Curtis Publishing Co., Philadelphia, Pa.

Miss Edith Brownlee:[1] I don't know exactly what to tell you about Filene's. All our work of this kind is done by the employees' association—the Filene Cooperative Association; that is, it is all done by the employees and not by the Company. We have two trained nurses, one who visits the employees who are ill at home, and another who stays in the store to be of service to those who need help there. We also have a doctor who may be consulted at certain times.

As to savings, the Cooperative Association carries on a Savings and Loan Bureau. It is a voluntary affair and one may put in whatever he likes at any time. The savings and loan bureau pays five per cent interest. If employees need money for any good reason, they may borrow from the Savings and Loan Bureau. For instance, a person sometimes is paid by the day and then is put on the permanent pay-roll. In a case like this, he may need money to carry him until his first pay day and he can borrow it from the savings and loan association. The officers of the Savings and Loan Bureau give their services for the benefit of the Filene Cooperative Association.

The F. C. A.—Filene Cooperative Association—also arranges for sickness insurance. This is a purely voluntary matter. The dues are from 32 cents to 80 cents a month and the benefits from $4.00 to $10.00 a week, paid up to 26 weeks a year. The insurance is placed with an outside company, but the dues are collected by the F. C. A.

There is also a Christmas Club in which anyone may deposit from 25 cents to $5.00 a week. The money is paid to the members of the Club just before Christmas, with five per cent interest.

Of course the important feature of the Filene Cooperative Association is the part that the employees take in the management of the business, but I think that does not come into the subject that you have been discussing, so you would probably not be interested in it.

The Chairman: I think we should be interested in hearing a word or two on that line.

Miss Brownlee: The F. C. A. is given a real voice in the conduct of the business. There are eleven directors in the company and four of those are chosen from candidates nominated by the Cooperative Association. These directors have the same power as anyone else on the Board and they vote on all questions brought to the directors. The books and policies of the Company are open to them.

There is also a by-law of the corporation which says that the Employees' Association has a right to make or change any rule of the store. If the management makes a rule, it is submitted to the Employees' Association. They may change the rule, which will then go back to the management. If the managers wish, they may pass it again. Then if the employees desire to take extreme measures, a mass meeting of the Association may be held and if two-thirds of the entire membership of the Association pass that rule it becomes a rule of the store, so that the employees really have the power to veto. They may also initiate rules, which must be submitted to the management, but may be passed over the manager's veto. They really have the final authority. That is the big thing in our Association.

Another important feature is the Arbitration Board. This is a board composed of a member from each section of the store, elected by the people in that section. To that Board any employee may take any question affecting store work, no matter what it is. Most frequently questions arise over the matter of discharge. Any employee who has been discharged and who wishes to bring his case before this Board may do so. If the Board reinstates him, he may go back to work just as if he had never been discharged. Other questions that come before the Board are transfers from one department to another which an employee may think unfair. Or if an employee believes that he is entitled to promotion which he does not get he may bring that before the Board. Questions of working conditions may also be brought up. This power and the power to make or change store rules are the important features of the F. C. A.

Mr. J. William Schulze:[1] May I ask from what source the Association gets its funds to pay the nurses, etc.—the Filene Association?

Miss Brownlee: They are paid by the firm, but are responsible to the Association.

Mr. Hutkin: I want to answer a few of Mr. Rich's remarks, and one was about why the salaried members should not receive the same benefits as married or single members. I think that is the way it

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[1] Wm. Filene's Sons Co., Boston, Mass.

[1] Tabor Manufacturing Co., Philadelphia, Pa.